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High-level fissile material cut-off treaty expert preparatory group

Note by the Secretary-General

The Secretary-General has the honour to transmit herewith the report of the high-level fissile material cut-off treaty expert preparatory group established pursuant to paragraph 2 of General Assembly resolution 71/259.

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Report of the high-level fissile material cut-off treaty (FMCT) expert preparatory group*

Summary

The present report of the high-level fissile material cut-off treaty (FMCT) expert preparatory group, established on the basis of General Assembly resolution 71/259, presents a menu of potential treaty elements that would facilitate the task of future negotiators of a treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices.

The report contains four sub-sections covering a treaty's scope, definitions, verification and legal and institutional arrangements, and other elements such as a treaty's preamble, and transparency and confidence building measures. For each subsection, the report provides a list of possible treaty elements and some of the considerations that negotiators may wish to take into account. Where the report provides lists of options, these attempt to capture the full range of views that exist on a future treaty.

The experts of the Preparatory Group agreed that this report should be read in conjunction with the 2015 report of the Group of Governmental Experts, as contained in document A/70/81, and that both should be taken into account by future negotiators in their deliberations.

In its recommendations, the Preparatory Group agreed — *inter alia* — that the negotiation of a treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices begin without delay in the Conference on Disarmament, on the basis of CD/1299 and the mandate contained therein, and that further consideration be given to what measures might facilitate the commencement of negotiations and enhance confidence.

* The report is being issued without formal editing.

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Foreword by the Secretary-General

The High-level fissile material cut-off treaty (FMCT) expert preparatory group (Preparatory Group) established by the General Assembly in its resolution 71/259 met in Geneva for two sessions of two weeks each, in 2017 and 2018.

In accordance with its mandate, the Preparatory Group examined the report of the Group of Governmental Experts, mandated pursuant to resolution 67/53, as contained in document A/70/81, as well as the views conveyed to the Secretary-General and contained in documents A/68/154 and Add.1, A/71/140/Rev.1 and Add.1.

The Preparatory Group also considered the views of United Nations Member States that participated in the two two-day open-ended informal consultative meetings organised by the Chair in 2017 and in 2018 in New York, which the Chair conveyed to the Group in accordance with General Assembly resolution 71/259.

As mandated by the General Assembly of the United Nations, at its meetings the Preparatory Group considered and made recommendations on substantial elements of a future non-discriminatory, multilateral and internationally and effectively verifiable treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices, on the basis of CD/1299 and the mandate contained therein.

The report of the Group provides a concise, plain-language menu of potential treaty elements to facilitate the task of future negotiators. The Report also offers options that reflect the full range of views expressed by the experts of the Preparatory Group on a future treaty.

The Preparatory Group recommends — *inter alia* — the start of negotiations of a treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices in the Conference on Disarmament, on the basis of CD/1299 and the mandate contained therein.

I take this opportunity to thank the Chair, Ambassador Heidi Hulan (Canada) and all the experts for their work, which will be a useful resource for future negotiators.

Letter of transmittal

Excellency,

I have the honour to submit herewith the report of the high-level fissile material cut-off treaty (FMCT) expert preparatory group (Preparatory Group). This group, which you appointed pursuant to paragraph 2 of General Assembly resolution 71/259 (2016), was comprised of the following experts selected on the basis of equitable geographic representation:

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Joint Secretary and Head of the Disarmament and International Security Affairs Division
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The Preparatory Group was ably assisted by the United Nations Office for Disarmament Affairs in Geneva, led by Mr. Marco Kalbusch, Senior Political Affairs Officer, and Ms. Silvia Mercogliano, Political Affairs Officer, and also received valued expert technical advice from Mr. Pavel Podvig and Mr. Zia Mian (United Nations Institute for Disarmament Research) and Mr. Olli Heinonen, who was a member of the Chair's team.

Views submitted by Member States in document A/68/154 and Add.1 and A/71/140/Rev.1 and Add.1 were taken into account by the Preparatory Group, as well as those conveyed by the Chair from the two open-ended informal consultative meetings held in New York on March 2–3, 2017 and February 15–16, 2018.

As its name suggests, the Preparatory Group was established to prepare, but not conduct, FMCT negotiations. Its constructive and practical discussions focussed on the possible elements of a future treaty, notably by building on — but not duplicating — the report of the 2014–15 Group of Governmental Experts (A/70/81).

In its final report, the FMCT Preparatory Group succeeded in distilling, in plain language, options for potential treaty provisions. These options cover the full range of existing views on an FMCT as understood by the group, and are complemented by those considerations experts believed would need to be brought to bear by future negotiators in choosing among them.

The inclusive character of this report, and experts' commitment to this approach, created the freedom for the group to openly debate the merits of all options, and examine how they would relate to one another as part of a future treaty's architecture, without prejudice to national positions. In addition, the iterative path this process followed, between the 25-member Preparatory Group and the GA, represented a unique multilateral exercise which, in my view, constitutes a model for future work in the area of nuclear non-proliferation and disarmament.

The value of a FMCT as a tool for addressing contemporary non-proliferation and disarmament challenges has never been more apparent than it is in the current international security context. I am confident that this consensus report represents a meaningful contribution towards such a treaty, the negotiation of which has long been the overwhelming will of the international community.

On the behalf of the Preparatory Group, I am honoured to submit to you the present report, which was adopted unanimously on June 8, 2018.

(*Signed*) Heidi **Hulan**
Chair of the High-Level Fissile Material Cut-off Treaty
Expert Preparatory Group

I. Introduction

1. In 2012, the General Assembly, in its resolution 67/53, created a Group of Governmental Experts to "make recommendations on possible aspects that could contribute to, but not negotiate a treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices on the basis of document CD/1299 and the mandate contained therein".[1] In 2015, the Secretary-General of the United Nations transmitted that group's consensus report (document A/70/81) to the General Assembly and to the Conference on Disarmament. It contained the most thorough expert intergovernmental assessment of a treaty to date, and characterized the range of expert views on treaty *aspects* — notably in relation to a future treaty's scope, definitions, verification, and legal and institutional arrangements.

2. The following year, the General Assembly underlined in resolution 71/259 (2016), that the Group of Governmental Experts' report, and the deliberations which underpinned it, serve as a valuable reference for States and a useful resource for treaty negotiators. In the absence of negotiations in the Conference on Disarmament, the General Assembly also requested the Secretary-General to establish a "high level fissile material cut-off treaty expert preparatory group" (Preparatory Group) to build on this work by making recommendations on treaty *elements* that would shape the treatment of each aspect of a final treaty.[2]

3. The Preparatory Group's membership was comprised of experts from 25 States chosen on the basis of equitable geographic representation. The Preparatory Group met over two two-week sessions in Geneva during 2017 and 2018, and operated on the basis of consensus.

4. The Preparatory Group took an inclusive approach to its work, based on a wide variety of information sources. In accordance with General Assembly resolution 71/259, the Preparatory Group took into account the views conveyed by the Chair from the two open-ended informal consultative meetings held in New York on March 2–3, 2017 and February 15–16, 2018. It also examined the views submitted by Member States as contained in documents A/68/154 and Add.1 and A/71/140/Rev.1 and Add.1. In addition, the Preparatory Group benefited from informal briefings and advice from internationally recognized technical experts. Experts were encouraged to express their views in working papers, which were taken into account in the preparation of this report.

5. As suggested by its name, the Preparatory Group, while focusing on preparing for future treaty negotiations, considered and made recommendations on substantial elements of a future non-discriminatory, multilateral and internationally and effectively verifiable treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices, on the basis of CD/1299 and the mandate

[1] Referred here after variously as "the treaty" or "a treaty" for the sake of simplicity and without prejudice to the treaty's final form.

[2] General Assembly resolution 71/259 OP2 states: "Requests the Secretary-General to establish a high-level FMCT expert preparatory group with a membership of 25 States, chosen on the basis of equitable geographical representation, which will operate by consensus, without prejudice to national positions in future negotiations, and which will meet in Geneva for a session of two weeks each in 2017 and 2018, to consider and make recommendations on substantial elements of a future non-discriminatory, multilateral and internationally and effectively verifiable treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices, on the basis of CD/1299 and the mandate contained therein; the high-level FMCT expert preparatory group will also examine, with a view to making possible recommendations, the report of the Group of Governmental Experts, mandated pursuant to resolution 67/53, as contained in document A/70/81, as well as the views submitted by Member States as contained in documents A/68/154 and Add.1 and A/71/140/Rev.1 and Add.1."

contained therein. To do so, experts developed a concise, plain-language menu of potential treaty elements that would facilitate the task of future negotiators. Where lists of options exist in this report, they should be understood to reflect the full range of views expressed on a future treaty but not to imply in any way agreement on any individual option. Since these preparatory discussions did not constitute negotiations, no attempt was made to narrow this range of substantive options, or resolve the political obstacles preventing negotiation of a treaty. Additionally, experts were able to build on the work of the Group of Governmental Experts by further elaborating a number of issues including the legal and institutional considerations related to a future treaty.

6. Experts agreed that this report should be read in conjunction with the report of the Group of Governmental Experts as contained in document A/70/81, which was the starting point for the Preparatory Group's work. The Preparatory Group was mindful not to repeat its content nor re-open the consensus already achieved in that context. Throughout deliberations, experts also avoided replaying debates that underpinned the Group of Governmental Experts' findings. This helped maximize the short time available to the Preparatory Group, and ultimately led it to produce a menu of potential treaty elements and achieve agreed recommendations (as contained in paragraph 96) that may help lay important groundwork for future negotiations. Both are presented without prejudice to national positions or the emergence of other elements prior to or during negotiations.

II. Treaty Aspects

7. Part II of this report contains four sub-sections covering the main treaty aspects of a future treaty, that is to say its A) scope, B) definitions, C) verification and D) legal and institutional arrangements. For each aspect, the Preparatory Group engaged in nuanced and granular discussions on the potential composition of elements and how they could be reflected in a treaty. Each subsection contains a list of possible treaty elements and some of the considerations that negotiators may wish to take into account when weighing these options.

8. Neither the potential treaty elements (underlined), nor the options listed under each, are presented in any particular order of rank, priority or importance. Furthermore, the options are not necessarily mutually exclusive and experts noted that possible combinations could be considered during negotiations. Overall, the Preparatory Group also agreed that negotiators would need to appreciate the interrelationship between treaty aspects and how decisions made on any one aspect would impact the choice of elements in others.

A. Scope

1. Potential treaty elements:

9. Underlying obligation

- The treaty should contain an explicit obligation not to produce fissile material[3] for nuclear weapons or other nuclear explosive devices.

[3] Hereafter, "fissile material" refers to fissile material as defined in a future treaty.

10. Additional obligation: diversion of fissile material

- Treaty does not include an explicit obligation prohibiting diversion of fissile material, since diversion would be dealt with by the treaty's verification regime
- Explicit obligation not to divert treaty-obligated fissile material from non-proscribed to proscribed purposes
- Explicit obligation not to divert treaty-obligated fissile material from non-proscribed purposes.

11. Additional obligations: acquisition and transfer of fissile material

- No explicit obligation prohibiting acquisition and transfer
- Explicit obligation not to acquire fissile material for proscribed purposes
- Explicit obligation not to transfer fissile material for proscribed purposes.

12. Additional obligations: assisting, inducing or encouraging activities proscribed by the treaty

- No explicit obligation against assisting, inducing or encouraging activities proscribed by the treaty
- Explicit obligation against assisting, inducing or encouraging activities proscribed by the treaty.

13. Additional implementing obligation: declarations

- Treaty does not include an explicit obligation related to declaration requirements, since these would be contained in individual agreements worked out between each State party and the verification body
- Treaty includes an explicit obligation related to declaration requirements for States parties
- A list of declarations and their content is included in an annex to the treaty.

14. Additional implementing obligations: requiring States parties to close-down/disable/decommission/dismantle facilities or convert them to civilian and/or non-proscribed use

- No explicit obligation relating to closing-down, disabling, decommissioning, dismantling facilities
- Explicit obligation requiring States parties to close-down, disable, decommission and dismantle production facilities, or parts thereof, used exclusively for the production of fissile material for nuclear weapons or other nuclear explosive devices
- Explicit obligation offering a choice to States parties to either close-down disable, decommission and dismantle facilities or convert them to civilian and/or non-proscribed uses
- Explicit obligation not to revert these facilities to a condition that would allow for the production of fissile material for nuclear weapons or other nuclear explosive purposes.

15. Additional implementing obligation: verification

- Explicit or implicit obligation to accept verification with specific measures included in the treaty

- Explicit obligation to accept verification with specific measures elaborated in a separate agreement between each State party and verification body based on a model agreement.

16. Possible treaty elements related to functional categories of fissile material

Fissile material produced after the entry into force of the treaty:

- Include element specifying that the underlying obligation, would only proscribe production for nuclear weapons or nuclear explosive devices, and would not infringe upon States parties' rights to the peaceful uses of nuclear energy or prohibit non-proscribed military uses
- Explicit obligation for States parties to subject this material to the treaty's verification regime, with managed access procedures where necessary, to the extent this material is not covered through existing safeguards agreements, as applicable.

Fissile material produced prior to the entry into force of the treaty for civilian and non-proscribed purposes:

- Material is not subject to the treaty so no obligation required
- Obligation to declare this material only
- Obligation to declare this material and subject it to the treaty's verification regime, with managed access procedures where necessary, to the extent this material is not covered through existing safeguards
- Combine one of the options above with provisions that address this material through provisions enabling parallel arrangements, additional protocols or voluntary measures that States parties could pursue during or subsequent to treaty negotiations, including within a set timeframe.

Fissile material produced prior to entry into force of the treaty that is designated by the concerned State party as excess to nuclear weapons requirements:

- Material is not subject to the treaty so no obligation required
- Obligation that any voluntary declarations of fissile material that is designated as excess to nuclear weapons would be subject to the verification regime once the material is in non-sensitive form
- Obligation that any reduction in nuclear weapons would result in a designation of the fissile material recovered from those weapons as excess to nuclear weapons requirements and subject to the verification regime once the material is in non-sensitive form
- Include mechanism enabling fissile material released by the results of individual, bilateral or multilateral disarmament arrangements to be declared and made subject to the treaty's verification regime
- The treaty addresses this material through provisions in the treaty or enabling parallel arrangements, additional protocols or voluntary measures that States parties could pursue during or subsequent to treaty negotiations, including within a set timeframe
- Obligation not to revert fissile material designated as excess to nuclear weapons requirements to proscribed purposes.

Fissile material produced for nuclear weapons prior to entry into force of the treaty:

- Material, regardless of how past production is referred to, is not subject to the treaty, so no obligation required
- Obligation that existing stocks of fissile material for nuclear weapons be subject to the treaty
- Obligation that material in nuclear weapons be declared but not verified
- Obligation that any reduction in nuclear weapons would result in a declaration of the fissile material recovered from those weapons as excess to nuclear weapons requirements and subject to the verification regime once the material is in non-sensitive form
- Include mechanism enabling fissile material released by the results of individual, bilateral or multilateral disarmament to be declared as excess and made subject to the treaty's verification regime
- Treaty addresses this material through provisions enabling parallel arrangements, additional protocols or voluntary measures that States parties could pursue during or subsequent to treaty negotiations, including within a set timeframe.

2. Considerations related to scope:

17. Negotiators may want to take into account some of the general principles that guided the Preparatory Group's discussion on a treaty's scope. The treaty's scope sets out the legal obligations incumbent on States parties, and should support its objectives and adhere to its basic principles as set out in document A/70/81. The treaty must prohibit the production of fissile material for nuclear weapons or other nuclear explosive devices, and apply this in a non-discriminatory manner. The treaty would not ban the production of fissile material per se, but rather proscribe its production for use in nuclear weapons or other nuclear explosive devices.

18. During negotiations, care should be taken to ensure that no provision is drafted in a way that could be construed as infringing upon States parties' rights to the peaceful uses of nuclear energy or as prohibiting non-proscribed military uses. In connection with the underlying obligation of the treaty, negotiators may want to consider including a provision to the effect that the treaty does not preclude the use of fissile material of any quality and any isotopic composition for purposes not proscribed by the treaty.

19. Building on the examination of the various functional categories of fissile material contained in paragraphs 20–27 of document A/70/81, the Preparatory Group examined the potential treaty elements that could be included in the treaty to define the treaty's scope. The Preparatory Group did not attempt to decide if, or to what extent, each category could be included in a future treaty, but rather outlined in paragraph 16 possible treaty elements falling in each.

20. The potential diversion, acquisition and transfer of treaty-obligated fissile material for proscribed purposes pose a threat to the treaty's underlying obligation. Negotiators will need to determine how to mitigate these risks.

21. The Preparatory Group considered whether, in addition to fissile material, equipment and technology (tangible or intangible) related to the production of treaty-obligated material have relevance or not for treaty objectives or purposes.

22. If assisting, inducing or encouraging prohibited activities are addressed in the treaty, negotiators would need to further explore how these concepts are defined.

23. In order to mitigate diversion risks and to facilitate verification, the treaty may contain explicit obligations requiring States parties to close-down/disable/ decommission/dismantle production facilities or convert them to civilian and/or non-proscribed uses.

B. Definitions

1. Potential treaty elements:

24. Definition of fissile material

- The IAEA safeguards concept of special fissionable material, as outlined in Article XX of its Statute, focusing on plutonium-239, uranium-233, uranium enriched in the isotopes 235 or 233 and mixtures containing one or more of the foregoing
- The IAEA safeguards concept of un-irradiated direct use material, focusing on plutonium containing less than 80% Pu-238, and high enriched uranium (containing 20% or more of the isotope uranium-235 and/or uranium-233)
- A treaty specific definition of weapons grade material containing 90% or more of uranium-235 or uranium-233 or plutonium containing more than 95% of plutonium-239
- A specific isotopic composition, to be determined during negotiations based on the scope and verification requirements of the treaty.

25. Other/alternative fissile materials

- Treaty does not include a definition of other/alternative fissile materials since they fall outside the treaty's scope
- Relevant isotopes of neptunium and/or americium are defined as fissile material for the purposes of the treaty, either through a treaty-specific definition or one based on existing definitions (e.g. IAEA Safeguards Glossary)
- Treaty provision directly linking treatment of these materials to developments in other regimes
- Treaty includes a provision to capture "any other fissile material suitable for the manufacture of nuclear weapons". This can be accomplished by adding to the definition of fissile material, any material:
  - as agreed by States parties in a (future) treaty annex or protocol
  - as per a decision of the treaty governing body (which could be based on developments in other regimes).

26. Definition of fissile material production

- Defined as "any activity that produces fissile material" (per the applicable definition of fissile material)
- Specific definition(s) focused on enrichment and reprocessing activities and adapted to the treaty definition of fissile material, including the following:

- to enrich uranium to an enrichment of [x][4] percent or greater in those isotopes
- to separate fissile material from fission products in irradiated nuclear material through reprocessing or any other process
- to increase plutonium-239 to [x] percent in plutonium by any isotopic separation process

- Defined as "activities using production facilities to enrich uranium in U-235, and to acquire plutonium or U-233 by reprocessing".

27. Definition of fissile material production facility

- Defined as "any facility that is capable of producing fissile material" (per the applicable definition of "fissile material production")
- Specific definition including thresholds of production capacities based on the treaty definition of "fissile material" including:
  - Isotopic enrichment facilities where production capacities are above a threshold to be determined by negotiators
  - irradiated nuclear material reprocessing facilities where production capacities are above a threshold to be determined by negotiators
- Definition of "fissile material production facility", that includes facilities other than enrichment and reprocessing facilities (although not uranium mining and milling)
- A definition of "fissile material production facility" based on equipment and design and annual production capacity, or use for fissile material production
- Defined as "uranium enrichment facilities or reprocessing facilities, with a threshold to be determined by negotiators, an integrated and stable process, comprehensive supporting equipment, and the capability of continuous operation".

2. Considerations related to definitions:

28. Negotiators may want to take into account some of the general principles that guided the Preparatory Group's discussion on a treaty's definitions. Definitions should be practical, scientifically and technically accurate and tailored to the specific objectives of the treaty, and be crafted in a manner that clarifies the obligations of a treaty, while allowing for viable implementation and verification. Final definitions would have an impact on treaty scope and the verification regime, with key elements of the latter requiring precise definitions to preclude variances in interpretation or in the implementation of obligations.

29. The Preparatory Group explored various approaches to treaty definitions. Under a minimalist view, the treaty would define only the terms that are essential for the clarity of the agreement. Alternatively, a more maximalist approach would involve defining as many terms as possible for greater clarity in treaty interpretation.

30. Negotiators may wish to take into account the benefits and drawbacks inherent to cross-referencing definitions with other treaties/regimes, and consider whether treaty-specific lists of definitions are more appropriate. It is furthermore possible that

[4] [x] in paragraph 26 will reflect the levels of isotopic enrichment or reprocessing as per the treaty's definition of fissile material.

the definitions included in this treaty might have an impact on other relevant regimes, a consideration negotiators may wish to take into account.

31. Negotiators should be aware that the scope of the treaty will have significant implications for the definition of "fissile material production" in particular. For example, in the event that the treaty excludes past production of fissile material, this definition could explicitly state that it does not include activities involving fissile material produced prior to the entry into force of the treaty, and vice versa.

32. Negotiators should be aware that the choice of definition for fissile material has significant implications for other treaty aspects and for verification in particular. The definition will determine which facilities, or parts thereof, will need to be verified. This in turn affects the content of States parties' declarations and the verification tools that will be required. However, automatic linkages between the breadth of definition and the verification coverage should not be assumed.

33. If negotiators decide to include other/alternative fissile materials in the treaty, they will need to be defined. While this typically relates to neptunium and americium, it could also address other/alternative materials so long as they are fissile in nature. It may also be possible to define these materials for the purpose of prohibiting their production for use in nuclear weapons or other nuclear explosive devices, but not subject them to treaty verification unless so decided by States.

34. Negotiators may wish to consider whether or not non-fissile materials — tritium *inter alia* has been mentioned — would be relevant for inclusion in a treaty. If negotiators decide to address these materials, it could be done either in the treaty or at a later stage if agreement exists.

35. Negotiators may decide to define the terms "diversion", "acquisition", "transfer", "non-sensitive form",[5] "non-proscribed purposes" and/or "proscribed purposes". However, negotiators will want to avoid definitions that are overly broad or narrow so as to facilitate and not hamper assessments of compliance, create unintended loopholes or impact negatively on the peaceful uses of nuclear energy.

36. Negotiators may want to define quantitative thresholds associated with "fissile material production facility". This definition could take into account a possible restriction based on the "significant quantities" of fissile material that would need to be produced for a nuclear weapon or a nuclear explosive device, as well as the risk posed by accumulated production from multiple facilities. It could also include a provision distinguishing between "industrial-scale" and "laboratory-scale" facilities. If negotiators define "fissile material production facility" as one that is "capable of producing fissile material", this concept should be further elaborated.

37. In addition, it is possible to incorporate and define terms relating to facility status into any definition of fissile material production facility (e.g. "closed down", "disabled", "decommissioned", "dismantled", etc.) either by referring to the IAEA Safeguards Glossary or creating new ones. In line with the principle of irreversibility, negotiators may also wish to take into account the capacity of a facility to produce fissile material as opposed to its current status (e.g. fissile material production facilities that have been decommissioned or dismantled, but that can be recommissioned to produce proscribed material again).

38. The treaty could also provide a separate definition of "fissile material-*related* facility" to distinguish between facilities that are used for production and other facilities in the fuel cycle including storage or processing facilities (other than enrichment and reprocessing) where treaty-obligated material is processed or used. If

[5] Consideration should be given to the fact that the determination of what is in "non-sensitive form" remains primarily a national prerogative.

so, these facilities could be declared and monitored under the verification regime. If the verification regime effectively follows the fissile material produced, such a definition may not be warranted.

39. Once the scope and verification regime for the treaty have been established, negotiators will want to look closely at any decision to define any of the additional terms outlined in paragraph 36 and 37, since most have particular technical meanings.

C. Verification

1. Potential treaty elements:

40. Verification and treaty architecture

- Verification regime negotiated and fully detailed in the body of the treaty itself
- Treaty sets out the key verification-related obligations and includes a verification annex containing the implementation procedures for the verification regime, applicable to all States
- Treaty elaborates the main requirements of the verification regime and stipulates that individual agreements/protocols are to be negotiated between the verification body and individual States parties or groups of States parties either by the time of, or after, entry into force/accession
- Treaty sets out the main requirements of the verification regime and establishes a model verification/ safeguards agreement that would be implemented through agreements with individual States parties.

41. Verification arrangement

- States already required, at entry into force, to have comprehensive safeguards:
  - States parties are required to have in force an IAEA Comprehensive Safeguards Agreement
  - States parties are required to have in force an IAEA Comprehensive Safeguards Agreement and Additional Protocol (or credible measures similar, but not necessarily identical to)
  - States parties are required to have in force an IAEA Comprehensive Safeguards Agreement and Additional Protocol.
- States not required, at entry into force, to have comprehensive safeguards:
  - Alternative verification arrangement specific to the treaty is developed.
- A uniform arrangement for all States parties.

42. Verification approach

- Focussed approach concentrating on routine verification activities at enrichment and reprocessing facilities and at other facilities that are processing or handling treaty-obligated fissile material
- Comprehensive approach covering the focussed approach and most, if not all, of the nuclear fuel cycle
- Hybrid or risk-based approach, which grades verification effort based on identified risks, concentrating particularly on those areas of the nuclear fuel cycle where the degree of attractiveness for misuse is highest, should a party seek to violate its treaty obligations

- Categorized approach, which applies different verification methodologies and measures for different categories of uranium enrichment facilities and reprocessing facilities, based on a categorization according to their production purpose and operational status.

43. Declaration content

- Treaty specifies that initial declarations could include any or all of the following:
  - Fissile material possessed at entry into force that is subject to the treaty
  - All fissile material production facilities, as defined by the treaty, and possibly including design information
  - Fissile material-related facilities, as defined by the treaty (as applicable)
- Treaty specifies that ongoing declarations could include any or all of the following:
  - Current inventories, including their locations, of all fissile materials (including by category as applicable)
  - Current and future plans on the production and use of fissile material to enable verification planning
  - Plans to construct new facilities or changes to the status of existing ones
  - Plans to conduct fissile material-related research and development activities whether or not fissile material is physically present
- Treaty specifies that information relevant to gaining assurance with regard to the completeness of a state's declarations, such as information about nuclear fuel cycle activities
- In addition to any of the above options, the treaty may specify that more specific declaration content would be prepared on a case-by-case basis between the verification body and the State party as needed to facilitate verification
- Declaration content would include treaty-obligated fissile material production facilities and fissile material produced and acquired after the entry into force of the treaty
- The treaty is silent *vis-à-vis* declaration content, which would be prepared on a case-by-case basis between the verification body and the State party.

44. Verification toolbox

- A toolbox could contain, any or all of the following, but would not necessarily be limited to:
  - A system of material accountancy and control
  - Declarations
  - Containment and surveillance techniques and monitoring
  - Inspections: routine, non-routine (e.g. complementary access, special, challenge)
  - Consultation and clarification mechanisms for states to address compliance concerns
  - Managed access procedures and provisions on protection of sensitive information

- Remote monitoring techniques
- Environmental sampling
- Open source techniques including commercial satellite imagery
- Design information verification.

2. Considerations for verification:

45. Negotiators may want to take into account some of the general principles that guided the Preparatory Group's discussion on treaty's verification. Namely, that a non-discriminatory, multilateral and internationally and effectively verifiable treaty should deter and detect non-compliance in a timely manner, provide credible assurance that States parties are complying with their treaty obligations and guard against frivolous and/or abusive allegations of non-compliance. At the same time, concerns regarding sensitive information, whether related to national security, non-proliferation or commercial proprietary reasons should be respected, in a manner that avoids compromising the credibility and efficacy of verification efforts, and considers the cost-efficiency dimension of verification activities.

46. Decisions about the verification model for the treaty are interlinked with decisions on the treaty's institutional model, and in particular, whether the IAEA will play a role in treaty verification. If the IAEA were selected as the verification body, not every option identified in paragraph 40 would be applicable, since it is likely that the verification model would involve individual agreements being negotiated with States parties, or a model safeguards agreement.

47. In addition, negotiators will want to consider the benefits and drawbacks of transferring and applying tools and concepts from other relevant regimes to this treaty. It is important to ensure that new verification-related obligations complement the existing ones, while avoiding duplication or contradiction.

48. The principle of non-discrimination, which does not presuppose application of identical verification procedures in all States parties, is relevant to the design of the treaty's verification regime. In particular, negotiators will want to consider how to apply standards for the treaty's verification in States with currently unsafeguarded facilities, since any applicable verification agreements will not necessarily cover all relevant facilities where fissile material is handled in these States.

49. When selecting the verification approach, negotiators should consider the extent to which credible assurances can be provided that States parties are complying with their treaty obligations that no undeclared fissile material production is occurring, and no undeclared fissile material production facilities exist, thereby addressing both the correctness and completeness of declarations. This is connected with the appropriate identification and consistent application of treaty verification measures, while taking into account the concerns of States parties regarding sensitive information, whether related to national security, non-proliferation or commercial proprietary reasons. In this context, negotiators may wish to explore a deferred verification approach, in which certain fissile material, when appropriate, would be secured and verified when it enters the elimination or disposition process.

50. The group considered that the verification regime would be particularly relevant for countries with unsafeguarded facilities at the entry into force of the treaty while states already required to have comprehensive safeguards might have their verification requirements met by their existing safeguards arrangements at the entry into force.

51. Negotiators may see merit in explicitly stating the starting and termination points of verification. For example, the level of irradiation at which the fissile

material is no longer considered unirradiated or the level of dilution at which it becomes practically irrecoverable. Negotiators may want to establish standards for "significant quantities" and "timeliness", which could differ from existing IAEA standards for states not currently required to have in place comprehensive safeguards.

52. A diverse toolbox will be necessary for the regime to provide credible assurance that States parties are complying with treaty obligations and verification requirements. The nature and content of the verification toolbox will depend on decisions made by negotiators on the treaty's scope and definitions. New tools may need to be developed to address technical verification challenges, including the protection of sensitive information, depending on the scope of the treaty. A specific verification arrangement may need to be developed for application of verification to fissile material in non-proscribed military use. It will also be important for negotiators to leave flexibility in the toolbox to account for future developments in verification technology and/or the requirements of ongoing and future disarmament efforts.

53. As a legal and practical matter, States parties will need to provide declarations in order to facilitate effective verification. The nature and content of declarations are interlinked with the scope and definitions of the treaty, and the verification model selected by negotiators. Negotiators will also need to decide by which means declaration content is determined.

D. Legal and institutional arrangements

1. **Potential treaty elements:**

54. Governance/policy-making and technical bodies

- Treaty establishes a conference of States parties (with or without an established review cycle)
- Treaty establishes an executive council
  - Unique to the Treaty
  - Within the IAEA
- A verification body is established
  - Unique to the treaty
  - Within the IAEA
    - Safeguards department
    - New department
- Administrative secretariat is created
  - Unique to the treaty
  - Within the IAEA.

55. Models for a treaty's institutional structure

- **Standalone FMCT organization (FMCTO)**
  - Decision-making vested in the conference of States parties and a FMCTO executive council
  - Verification would be carried out by a FMCT-specific verification body
  - Administrative support provided by FMCTO secretariat.

- **FMCTO/IAEA support under cooperation agreement**
  - Dedicated FMCT organization
  - Decision-making vested in the conference of States parties and a FMCTO executive council
  - Verification support provided by the IAEA under a cooperation agreement, supplementing verification activities undertaken under IAEA safeguards agreements
  - Administrative support provided by FMCTO secretariat.
- **FMCTO oversight/IAEA verification**
  - Dedicated FMCT organization
  - Decision-making vested in the conference of States parties and the FMCTO executive council
  - Separate verification unit created in the IAEA, under the responsibility of the Director General but outside the standard IAEA decision-making structure
  - Administrative support provided by FMCTO secretariat and/or unit within the IAEA.
- **IAEA verification and oversight**
  - Decision-making vested in:
    - FMCT Conference of States parties for treaty review
    - Possible FMCT executive council for treaty implementation/compliance
    - IAEA Board of Governors for oversight of the verification regime
  - Verification carried out by the IAEA, within or outside the Safeguards Department, through the development of safeguards-type bilateral agreements with States parties
  - Administrative support provided by IAEA Secretariat (possibly special FMCT unit).

56. Mechanisms to address issues relating to non-compliance

- **Raising compliance concerns:**
  - Verification body reports findings of concerns to the relevant decision-making body
  - State party raises concerns to:
    - Verification body
    - Executive council
    - Conference of States parties (including through an extraordinary session).
- **Assessing allegations of non-compliance and attempting to resolve outstanding issues:**
  - Discussion between verification body and State(s) party(ies) implicated
  - Dialogue between States facilitated by the executive council

- Dialogue (among States) in the executive council or conference of States parties.

- **Making a finding of non-compliance:**
  - States parties (whether in the conference of States parties or the executive council) should be vested with the authority to make a finding of non-compliance based on the information received from the verification body, the executive council and/or the conference of States parties.
- **Reporting formal findings of non-compliance:**
  - Treaty body (executive council or conference of States parties as applicable) takes measures allowed by treaty
  - Treaty body (executive council or conference of States parties as applicable) reports to the UN Security Council and/or the UN General Assembly.
- **Non-compliance: Possible corrective measures**
  - Suspension of membership from decision-making bodies
  - Revoking privileges under the treaty
  - Collective measures in conformity with international law
  - Reporting to the UN Security Council and/or UN General Assembly.

57. Dispute settlement structure

- One or more of the following options, potentially arranged in an escalatory scheme:
  - Bilateral or plurilateral consultations between States parties
  - Disputes are settled within executive council (or its equivalent)
  - Disputes are settled within conference of States parties
  - Subsidiary body is established to settle disputes
  - Arbitration
  - Mediation
  - Referral to the International Court of Justice (advisory opinion).

58. Substantive amendment procedure

- Referral mechanism to conference of States parties
- Review conference
- Amendment conference
- *Ad hoc* diplomatic conference.

59. Process for technical updates

- Dedicated and expedited process for technical updates
- No dedicated and expedited process is possible.

60. Entry into force

- Entry into force dependent on [x] # of ratifications
- Entry into force dependent on the ratification by all, or [x] #, of States in accordance with specified criteria:

- States with nuclear power/research reactors
- States with unsafeguarded facilities
- States with enrichment and/or reprocessing facilities/capabilities
- States whose governments are designated depositaries of the treaty; or
- States from more than one of the categories above

- Entry into force dependent on the ratification of States as identified in the Treaty
- Any combination of the above
- After [x] time period after any of the first four options
- Any of the foregoing could be combined with a provisional application provision
- Entry into force expedited through the progressive development of a framework agreement model.

61. Duration

- Indefinite
- Long duration with renewal provisions
- Long duration without renewal provisions.

62. Withdrawal

- Compliance as a condition of withdrawal
- Withdrawal based on extraordinary events related to subject matter of the treaty have jeopardized a State party's supreme interest
- Advance notice for withdrawal
- Element indicating that States remain responsible for commitments previously entered into on treaty obligated material, and for any violations that may have been committed prior to withdrawal
- Any combination of the above.

63. Treaty accession

- The treaty should include an element enabling it to be open for accession, with or without conditions, to all States at any time after entry into force.

64. Reservations

- Treaty states that its provisions are not subject to reservations
- Treaty only allows for reservations not incompatible with core obligations (object and purpose of the treaty)
- No specific treaty element on reservations.

65. Interpretative declarations

- Treaty explicitly allows interpretative declarations
- Treaty remains silent on interpretative declarations.

66. Depositary/depositaries

- Treaty depositary is the UN Secretary-General
- Treaty depositary is specific State(s) identified in the treaty.

2. Considerations for legal and institutional arrangements:

67. Negotiators may want to take into account some of the general principles that guided the Preparatory Group's discussion on a treaty's legal and institutional arrangements. For the Preparatory Group, it was important that these arrangements be efficient and effective, non-discriminatory, flexible and adaptive for responsive decision-making. They must also ensure legal stability and credibility, including by being politically impartial and technically able and by applying resource-efficient techniques, and protect the security of information flowing into the system.

68. To facilitate effective governance and decision-making, negotiators will want to ensure that the representation, roles and responsibilities of the institutional bodies are clearly established. As part of this, negotiators should consider whether a single policy-making body in the form of a conference of States parties will suffice, or whether it is also necessary to establish an additional policy-making body such as an executive council. If not accomplished during negotiations, negotiators may see merit in specifying how and when this should be done. Experts pointed to the connection between the time required for the establishment of governance bodies and the treaty's entry into force, which should be taken into account during negotiations. In addition, negotiators will need to consider provisions to address the relationships between these and other international bodies, an area where further work is recommended.

69. Possible treaty elements referring to a verification role for the IAEA assume a favourable decision by IAEA policy-making organs for that Agency to play a role in a treaty banning the production of fissile material for nuclear weapons or nuclear explosive devices. Negotiators should also consider the implications that the institutional structure selected has for the IAEA Statute.

70. If negotiators choose the standalone FMCT organization model for the treaty's institutional structure, they will need to determine if and how verification activities of the IAEA in States with comprehensive safeguards could be sufficient guarantee of compliance with FMCT verification commitments. Options allowing for detailed exchange of verification information between the two organizations could be considered, especially where compliance questions impact both organizations. Establishing a mechanism to protect sensitive information would also need to be a priority, though negotiators could envisage the creation of a confidentiality commission within the verification body to accomplish this goal.

71. If negotiators base the institutional structure on the FMCTO/IAEA verification under cooperation agreements model, the conference of States parties would be vested with treaty review, supervision of treaty implementation, recommendations and guidelines on all aspects relating to the FMCT. The FMCTO executive council would be responsible for implementation and compliance, relations with other institutions and the supervision of the technical secretariat. The cooperation agreement between the IAEA and the FMCTO would enable the former to provide support on the verification of the FMCT on the basis of existing mechanisms (in particular safeguards elements).

72. If negotiators choose the FMCTO oversight/IAEA verification model for the treaty's institutional structure, a separate FMCT verification structure would be established in the IAEA. Negotiators may want to consider whether the IAEA Board of Governors could request the Director General to consult and inform (under this model, the IAEA Board of Governors would not play a direct role in treaty decision-making, whereas the Director General would oversee the verification unit). Also, if the treaty's verification approach was a comprehensive safeguards agreement, or a comprehensive safeguards agreement plus an additional protocol (or measures consistent with), further consideration would be needed on how to address

verification in States that currently do not have both. Lastly, if this model is selected, there may be merit in ensuring physical proximity between the FMCT organization and the IAEA.

73. If negotiators choose an IAEA verification and oversight model for the treaty's institutional structure, the IAEA would carry out treaty verification through the development of safeguards-type bilateral agreements with FMCT States parties, and in all cases, the IAEA board would be involved in determining compliance. If the treaty's verification approach was a comprehensive safeguards agreement, or a comprehensive safeguards agreement plus an additional protocol (or measures consistent with), further consideration would be needed on how to address verification in States that currently do not have both. There would be no standing treaty organization, but rather treaty-related governance/decision-making would be vested in the States parties via the conference of States parties. Under this model, negotiators could choose to embed a separate FMCT executive council in the IAEA to oversee verification, or the IAEA Board of Governors would fulfil this role.

74. The Preparatory Group discussed some of the guiding principles that negotiators should bear in mind when developing compliance and dispute resolution mechanisms for the treaty. The mechanisms should be efficient and effective, subject to clear independent decision-making, and taking into account the inalienable rights of States to the peaceful uses of nuclear energy. They should also be adequately equipped to ensure the confidentiality and non-proliferation of sensitive information. Negotiators should strive to create mechanisms that are flexible and adaptable to maintain relevance over time. Negotiators should also not lose sight that these structures are meant to create an effective treaty that can command universal support. The negotiators will need to consider what constitutes non-compliance and who has the authority to determine that a State party is in non-compliance with its treaty obligations.

75. In establishing a mechanism to address possible cases of non-compliance, negotiators will want to ensure that it is non-discriminatory, transparent, objective, fact-based and is equipped to deter frivolous and/or abusive complaints. Since the Preparatory Group agreed that the compliance mechanism could be escalatory in nature, its recommendations in paragraph 56 are outlined according to phases of a possible non-compliance situation. Ultimately, however, the structure developed for situations of possible non-compliance will depend on the type of institutional structure adopted for the treaty.

76. In raising compliance concerns, experts agreed that the verification body should be neutral and fact-based in its report. In addition, States parties involved in these reports should have a right to reply and to request clarifications regarding the compliance concerns. In determining a non-compliance mechanism, negotiators will have to consider what sources of information may be relevant, how it is evaluated and how it is conveyed or relayed.

77. In assessing cases of non-compliance, experts agreed that States parties, whether through a conference of States parties or an executive council, should play the main role. They may wish to request clarifications, initiate consultations or task the verification body with an investigation among other possible actions. In carrying out an investigation, the verification body could initiate special verification measures (e.g. challenge inspections), some of which may require the approval of the executive council. Negotiators will need to consider what role, if any, national technical means could play.

78. States parties (whether in the executive council or the conference of States parties) should be vested with the authority to make a finding of non-compliance

based on the information received from the verification body, the executive council and/or the conference of States parties.

79. Measures taken to address findings of non-compliance could be escalatory in nature and may depend on whether the involved State party is a permanent member of the Security Council. In the event a treaty's institutional structure involves the IAEA, negotiators will need to consider how to resolve potential conflicts in compliance mechanisms between the two treaty bodies.

80. Negotiators will need to consider implementing a certain threshold for launching amendment procedures and/or for adopting amendments (i.e. by voting [x] # of States parties, qualified voting or by consensus). Other mechanisms may be possible once the institutional structure of the treaty is decided.

81. If negotiators establish a dedicated and expedited process for technical updates, they may wish to consider including a provision for regular review of relevant technological developments. To complement treaty processes for technical updates, the institutional structure might include an expert working group tasked with making recommendations on possible technical updates and submitting them to the relevant decision-making body for approval. Any amendments to the treaty, whatever their character, could be made only in accordance with the procedures established by the treaty.

82. Experts agreed that negotiators would need to consider the range of options between overly restrictive entry into force provisions that could negatively impact its effective implementation and more permissive elements that could undermine treaty credibility. In doing so, experts agreed that negotiators should take into account the principles of non-discrimination and ensuring the undiminished security for all. The entry into force mechanism should also be coherent with the objectives of the treaty. In crafting provisions on entry into force, negotiators should consider their implication for treaty universalisation.

83. In addition, the timing of entry into force was examined by the Preparatory Group. From a practical standpoint, negotiators would need to consider the delays that may be incurred to set up governance bodies and/or the verification regime. One option would be for negotiators to subject any of the options outlined in paragraph 60 to a delay as specified by the treaty. In making that decision, negotiators will need to weigh potential risks, including financial, if the treaty's verification regime is prepared without a treaty being in force.

84. Given the complexities of this issue, alternative approaches were suggested such as a phased approach to entry into force. For instance, conditions associated with entry into force (e.g. application of the verification arrangements) could be carried out according to schedules established in the treaty, or negotiated independently with States. In addition, the structure of the treaty could be established so as to enable the entry into force of an initial framework or umbrella treaty, with two or more protocols to be negotiated subsequently, including according to a specific timeframe. Experts agreed that negotiators will want to consider the implications of withdrawal by a State that is required for entry into force as it could undermine the object and purpose of the treaty.

85. Restrictive withdrawal provisions would be central to the credibility and effectiveness of the treaty and negotiators should weigh options accordingly. Experts noted that the consequences of withdrawal fall along a spectrum and could include triggering a formal dispute resolution mechanism or the treaty's termination. Experts agreed that there is a difference between a Member State that withdraws and maintains all necessary applications, and a Member State that withdraws after having carried out activities that constitute a violation under the treaty. Negotiators will want

to consider whether there should be reporting requirements for a State that is withdrawing and/or whether items transferred and subject to the treaty should be returned if the country withdraws. Negotiators will also need to consider how a State that is withdrawing from a treaty may return and whether that triggers new conditions. The role of governance bodies in all aspects related to withdrawal will have to be specified clearly in the treaty to avoid uncertainty in application.

86. If an element on reservations is included, it should apply universally. It would also need to be credible, which negotiators might achieve by making the element as unambiguous as possible. In particular, negotiators may wish to consider specifically identifying the elements to which reservations are restricted. The treaty may also further specify that any signatory or State party has the option of objecting to a reservation, *inter alia*, if, in its opinion, the reservation is incompatible with the object and purpose of the treaty.

III. Other elements

87. In addition to elements shaping a treaty's definitions, scope, verification and legal and institutional arrangements, the Preparatory Group also explored other treaty elements in the treaty's architecture. Part III contains potential elements relating to the treaty's preamble and possible transparency and confidence-building measures.

A. Preamble

88. A treaty will need a preamble, the content of which will ultimately depend on its objectives. More specifically, given the well-known political obstacles to its negotiation, this treaty's preamble might provide an appropriate space in which to contextualize the debate leading to its negotiation. Options for a treaty's preambular elements may include reference to, *inter alia*, in no particular order:

- the United Nations Charter
- content in document CD/1299 and the mandate contained therein
- the contribution of the treaty to international peace and security by preventing nuclear arms races and constituting an effective multilateral non-proliferation and disarmament measure
- ensuring continued international commitment and high-level attention to making practical progress on achieving a world without nuclear weapons and on non-proliferation in all its aspects
- the importance of ensuring that a treaty should not prohibit the production of fissile material for non-proscribed military purposes or civilian use nor limit peaceful research activities
- the importance of consistency with existing legal obligations and instruments as well as the broader non-proliferation and disarmament framework, notably the Treaty on the Non-Proliferation of Nuclear Weapons, and its review conferences, and the Comprehensive Nuclear-Test- Ban Treaty
- the importance of consistency with existing legal obligations and instruments as well as the broader non-proliferation and disarmament framework without explicit reference to other treaties and instruments, including the Treaty on the Non-Proliferation of Nuclear Weapons, and its review conferences, and the Comprehensive Nuclear-Test- Ban Treaty as an FMCT would be a standalone treaty

- the final document of the First Special Session of the General Assembly devoted to Disarmament (A/S-10/4)
- the treaty's role and relation to IAEA safeguards
- the inalienable rights of States to the peaceful uses of nuclear energy
- general treaty principles: mainly non-discrimination, irreversibility, internationally and effectively verifiable
- the risks associated with nuclear weapons
- the principle of undiminished security for all
- transparency and confidence building measures
- the treaty being conducive to strategic stability
- the treaty as a means to reduce risks of nuclear terrorism
- the treaty as a contribution to enhanced nuclear security globally
- the treaty's contribution to further reductions of nuclear weapons
- the importance of active and equal participation and leadership of women and their full involvement in the institutions of the treaty and in its efforts to maintain and promote peace and security
- the importance of having all States with enrichment and/or reprocessing capabilities join the treaty.

B. Transparency and confidence-building measures

89. The Preparatory Group discussed the applicability of elements that could be included in the treaty to enhance transparency and build confidence among States parties. Negotiators may or may not choose to include additional voluntary transparency and confidence-building measures in a treaty. If they decide to do so, they will need to clearly distinguish these from any mandatory obligations against which compliance may be assessed.

90. Potential options for voluntary measures could include one or more of the following:

- declare inventories of previously produced fissile material (all or some categories)
- provide information relevant to treaty objectives on previously produced fissile material (all or some categories)
- provide information relevant to treaty objectives on fissile material production facilities previously used to produce fissile material for nuclear weapons or other nuclear explosive devices
- provide periodic reports/declarations on measures States parties have taken nationally, bilaterally and multilaterally to reduce national inventories of fissile materials available for nuclear weapons and other nuclear explosive devices
- declare material excess to nuclear weapons requirements and subjecting it irreversibly to verification
- provide regular updates on treaty implementation
- declare facilities that fall under fissile material production thresholds

- demonstrate actions consistent with the treaty objectives and purpose, including elements of verification, prior to its entry into force
- agree to a mechanism enabling the creation of annexes or protocols as instruments for the inclusion of fissile material released by the results of nuclear disarmament at a later date.

91. More broadly, and even in the case where such elements are not included in the treaty, the Preparatory Group felt that the entry into force of a treaty with extensive membership will in itself help build trust and confidence, including among States with unsafeguarded fissile material production facilities. Technological and other advances made to enhance a treaty's verification toolbox would also promote trust and confidence among States parties and benefit broader nuclear non-proliferation and disarmament efforts.

92. Transparency and confidence-building measures might also play an important role prior to a treaty's entry into force.

IV. Conclusion and recommendations

93. The work of this Preparatory Group was not intended to duplicate that carried out by the 2014–15 Group of Governmental Experts, but rather to build on its findings by recommending substantial elements of a future treaty. In an effort to help expedite eventual negotiations, experts enumerated options for how potential treaty elements could be captured in a treaty and considerations that will need to be brought to bear by negotiators. Accordingly, the members of the Preparatory Group are confident that the content of this report will supplement document A/70/81 and be a useful resource for negotiators of a future treaty.

94. Experts made substantive headway, notably with regard to the significant analysis of possibilities for the treaty's legal and institutional arrangements. However, it was also clear from the Preparatory Group's deliberations that further work is needed to elaborate the various verification regime models to determine how they might work in practice. Similarly, additional work could usefully be done to assess the resource implications of the possible verification and institutional models. Such work would need to be informed by political considerations and would itself benefit from input from those technical bodies already dealing with related issues. While such work was deemed by experts as worthwhile, they also considered that it should not be regarded as a prerequisite to the immediate commencement of treaty negotiations.

95. In addition, from the outset it was agreed by experts that the Preparatory Group's report would reflect proposed options for treaty elements, rather than attempt to narrow the range of options. Not only did this approach honour the Preparatory Group's mandate, experts agreed it also provided space for constructive deliberations about the implications of all element options, without prejudice to national positions. In this context, experts are confident that the work of the Preparatory Group served to further the understanding of the strategic issues relevant to an FMCT that go to the heart of national security concerns of States. The Preparatory Group displayed a commitment to genuine dialogue among its unique membership, and the inclusivity of this process is a model for other multilateral nuclear non-proliferation and disarmament forums.

96. In addition to the specific recommendations on substantial treaty elements contained in Parts II and III of this report, the Preparatory Group agrees, in accordance with General Assembly resolution 71/259, on the following recommendations:

- The negotiation of a treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices begin without delay in the Conference on Disarmament, and on the basis of CD/1299 and the mandate contained therein
- Further consideration to be given to what measures might facilitate the commencement of negotiations and enhance confidence
- Future treaty negotiators take into account the work of the Group of Governmental Experts and the Preparatory Group as appropriate in their deliberations
- Further expert work be carried out, including in the Conference on Disarmament, to (a) elaborate how the various approaches to verification would work in practice and (b) assess the resource implications associated with the use in a treaty of the various potential elements
- In conveying the work of the Preparatory Group to the Conference on Disarmament, the Secretary-General call upon it to consider and fully examine the Preparatory Group's report
- All States give due consideration to the Preparatory Group's report, which should be read in conjunction with document A/70/81
- The report should be made available to the wider international community including civil society, for example on the websites of the United Nations and the Conference on Disarmament
- Future negotiators should consider gender perspectives/balance, encouraging the participation of women from the technical, scientific and political fields, to ensure their equal contribution to peace and security.

97. Finally, the Preparatory Group agreed that this report represents a significant step forward. Although a diversity of views exist on the content of a future treaty and the options contained in this report, this diversity could be resolved during the process of negotiations. Taken together with the report of the GGE, this report is a contribution to the commencement of negotiations.

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Item 134 of the preliminary list*
Financial reports and audited financial statements, and reports of the Board of Auditors

Second annual progress report of the Board of Auditors on the implementation of the information and communications technology strategy

Note by the Secretary-General

The Secretary-General has the honour to transmit herewith to the General Assembly a letter dated 24 July 2018 from the Chair of the Board of Auditors together with the report of the Board on progress in the implementation of the information and communications technology strategy.

* A/73/50.

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Letter of transmittal

Letter dated 24 July 2018 from the Chair of the Board of Auditors addressed to the President of the General Assembly

I have the honour to transmit to you herewith the second report of the Board of Auditors on the implementation of the information and communications technology strategy for the United Nations.

(*Signed*) Rajiv **Mehrishi**
Comptroller and Auditor General of India
Chair of the Board of Auditors
(Lead Auditor)

Information and communications technology: key facts

Budget and resources

$1,372.8 million	Information and communication technology (ICT) resources, excluding Umoja, for the biennium 2016–2017
67.95 per cent	Estimated percentage of the annualized ICT budget relating to peacekeeping operations (2016/17)
1,220	Number of applications in use across the United Nations, down from 2,340 in 2014
594	Number of locations in which ICT is used

Timeline

October 2014	The Secretary-General submitted the ICT strategy (A/69/517)
December 2014	The General Assembly adopted its resolution 69/262, in which it endorsed the ICT strategy
September 2015	The Secretary-General submitted his first report on the status of implementation of the ICT strategy for the United Nations (A/70/364 and A/70/364/Corr.1)
December 2015	The Board of Auditors submitted its report on progress in the handling of ICT affairs in the Secretariat (A/70/581)
February 2016	The Advisory Committee on Administrative and Budgetary Questions submitted its report on progress in the handling of ICT affairs in the Secretariat (A/70/755) and recommended that the Board of Auditors submit an annual progress report during the five-year implementation period of the ICT strategy
April 2016	The General Assembly adopted resolution 70/238 B, in which it endorsed the conclusions and recommendations contained in the report of the Advisory Committee (A/70/755)
September 2016	The Secretary-General submitted his second progress report on the status of implementation of the ICT strategy for the United Nations (A/71/400)
July 2017	The Board of Auditors submitted its first annual progress report on the implementation of the ICT strategy for the United Nations (A/72/151) in pursuance of the recommendation of the Advisory Committee on Administrative and Budgetary Questions
April 2018	The Secretary-General submitted his third progress report on the status of implementation of the ICT strategy for the United Nations (A/72/755/Rev.1)

Strategy

20	**Number of strategic projects underpinning the strategy being reported on by the Office of Information and Communications Technology in document A/71/400. Of 20 projects, 12 have been reported as completed**
2014–2020	**The five-year time frame of 2013–2017 indicated in the strategic road map (A/69/517, annex I) has been revised to 2014–2020, in line with the Secretary-General's second report on the status of implementation of the ICT strategy for the United Nations (A/71/400)**

Second annual progress report of the Board of Auditors on the implementation of the information and communications technology strategy for the United Nations

Summary

Introduction

In 2014, at its sixty-ninth session, the General Assembly adopted its resolution 69/262, in which it endorsed the information and communications technology (ICT) strategy for the United Nations proposed in the report of the Secretary-General on ICT in the United Nations (A/69/517). The idea behind the strategy was to create a unified global provision of ICT to enable the successful delivery of the mandate of the United Nations.

To date, the Secretary-General has submitted three progress reports on the status of implementation of the strategy: the first (A/70/364 and A/70/364/Corr.1) in September 2015, the second (A/71/400) in September 2016 and the third (A/72/755/Rev.1) in April 2018.

The Board of Auditors submitted its report on progress in the handling of ICT affairs in the Secretariat (A/70/581) to the General Assembly in December 2015. After considering that report, the Advisory Committee on Administrative and Budgetary Questions recommended to the Assembly that it request that the Board submit an annual progress report during the five-year implementation period of the ICT strategy, and the Assembly endorsed that recommendation in its resolution 70/238 B. The Board submitted its first annual progress report (A/72/151) in July 2017, in compliance with that resolution. The present report is the second annual progress report of the Board; it provides an examination of the implementation of the strategy during 2017.

Key findings

The key findings of the Board are presented below.

Reporting

The Board noted that the Administration had not provided all the information sought by the General Assembly to be included in the third progress report on the implementation of the ICT strategy.

Governance and leadership

Governance framework

The Board noted that the Information and Communication Technology Executive Committee had not held any meetings in 2017. The Board also noted that the Information and Communications Technology Board, the governance body at the next level, had met only once, in March 2017, in a deviation from its mandated schedule of meeting at least once every six weeks.

The Board is of the opinion that, while governance enablers such as frameworks and structures have been put in place, practices are not in line with the prescribed framework.

Performance management

The Board noted that, although 29 ICT performance management metrics had been drawn up, covering strategic, management and operational areas, the performance management framework had not been implemented, owing to lack of resources.

Policies and compliance

The Board observed that policy gaps in areas of emerging concern, such as the outsourcing of ICT services, end-user device usage, information-sharing, open data and the reuse and safe disposal of decommissioned ICT equipment, had yet to be identified and addressed.

Project implementation

The Board noted that the extensions given to the eight ongoing projects in 2017 ranged from 9 to 37 months. The Board also noted that the time overruns for those ongoing projects ranged from 9 to 42 months compared with the original road map.

Modernization

Umoja mainstreaming

The Board noted that the approach to mainstreaming had shifted significantly since the strategy had begun to be implemented. The Board appreciates the fact that the completion of this project is interlinked with the deployment schedule and stabilization of Umoja. The Board is of the view that the Administration must prepare carefully for the eventual mainstreaming of Umoja to ensure that the process is carried out smoothly.

Information security

The Board noted that multiple systems — the open-source ticket request system at the Economic Commission for Latin America and the Caribbean, BMC Service Desk Express at the Office of the United Nations High Commissioner for Human Rights, and iNeed customer relationship management in the Office of Information and Communications Technology — continued to be in use to track security incidents. It found that the coverage of the managed intrusion detection service was limited to specific networks.

The Board also observed that the strategic project known as the "10-point action plan", undertaken to address the most urgent shortcomings in information security, had been reported as being 100 per cent complete in the third progress report of the Secretary-General, although the implementation of some of the 10 initiatives, such as intrusion detection, the promulgation of draft policies and the classification of information assets, were still ongoing as of March 2018.

Transformation

Application rationalization

The Board noted that phase 1 of the project, aimed at application rationalization/consolidation, had been completed in July 2015, and that it had been reported in the second progress report of the Secretary-General that the number of applications had been reduced from 2,340 to 1,652 and that the goal was to further reduce that number to 1,000 by 2020. The Board also noted that the number of applications had been further reduced to 1,220 by 2017. The Board observed

duplication in terms of applications that served a single functional area, leaving scope for further rationalization below the targeted 1,000 applications by 2020.

Innovation

The Board was informed that plans called for five technology innovation labs to be set up, in Egypt, Finland, Germany, Hungary and Malaysia. The Board was also informed that budget and space had been committed for two of the Labs, while no budget had been committed for the other three, although they were expected to be launched by the end of 2018.

Global sourcing

The Board observed that successive reports of the Secretary-General had been silent with regard to how many global sourcing opportunities had been identified. The timeline of the global sourcing strategy project, which had initially run until March 2017, had now been extended to February 2019.

Recommendations

While the recommendations of the Board are presented in detail in the present report, its main recommendations are that the Administration:

(a) **Follow appropriate processes and practices of the governance framework to meet the business goals of the Organization through the implementation of the ICT strategy;**

(b) **Establish a performance management framework with suitable metrics and benchmarks that help align the ICT initiatives with the strategic goal of the United Nations within an established time frame;**

(c) **Proactively engage with user departments to identify policy gaps in emerging areas and draw up action plans to frame such policies;**

(d) **Take appropriate measures to mitigate risks related to the project components under Umoja mainstreaming and ensure that the Office of Information and Communications Technology, in conjunction with the Umoja project office, ensures knowledge transfer to facilitate Umoja mainstreaming as and when it happens;**

(e) **Monitor the setting-up of the United Nations Technology Innovation Labs closely to ensure adherence to the prescribed timelines;**

(f) **Identify and document global sourcing opportunities along with an estimation of savings.**

I. Background

1. In its resolution 69/262, the General Assembly endorsed the information and communications technology (ICT) strategy for the United Nations proposed in the report of the Secretary-General on ICT in the United Nations (A/69/517). The strategy is focused on five major areas or key drivers, namely, a strengthened governance and leadership framework, modernization in support of organizational priorities, the transformation of ICT delivery, innovation to foster new technological solutions in the long term, and optimal use of ICT resources. The original strategic road map is provided in annex II.

2. To date, the Secretary-General has submitted three progress reports on the status of implementation of the ICT strategy: the first (A/70/364 and A/70/364/Corr.1) in September 2015, the second (A/71/400) in September 2016 and the third (A/72/755/Rev.1) in April 2018.

II. Mandate, scope and methodology

3. The Advisory Committee on Administrative and Budgetary Questions, after considering the report of the Board on progress in the handling of ICT affairs in the Secretariat (A/70/581), recommended to the General Assembly that it request that the Board submit an annual report during the five-year implementation period of the ICT strategy. The Assembly endorsed the recommendation in its resolution 70/238 B. The first progress report on the implementation of the ICT strategy, in compliance with that resolution, was submitted by the Board in July 2017.

4. The present report is the second annual progress report submitted in compliance with resolution 70/238 B and is based on an examination of the implementation of the ICT strategy during 2017. The audit was conducted from 5 to 29 March 2018. The report covers matters that, in the opinion of the Board, should be brought to the attention of the General Assembly.

III. Findings and recommendations

A. Follow-up to previous recommendations of the Board of Auditors

5. Of the 35 pending recommendations of the Board up to the year ended 31 December 2016, 8 (23 per cent) have been fully implemented, 25 (71 per cent) are under implementation, one (3 per cent) has not been implemented and the implementation of one (3 per cent) has been overtaken by events. While the Board notes that the percentage of implementation has improved over the past year, it stresses that 74 per cent of the recommendations have still not been implemented or are under implementation. The Board exhorts the Administration to take timely action on its recommendations so that the deficiencies noted are addressed quickly.

6. The details of the status of implementation of the recommendations are contained in annex I.

B. Reporting

7. The General Assembly, after considering the second report of the Secretary-General on the status of implementation of the ICT strategy for the United Nations (A/71/400) and the related report of the Advisory Committee on Administrative and

Budgetary Questions, requested, in its resolution 71/272 B, that the Secretary-General provide updated information on, inter alia:

(a) Specified objectives;

(b) Benchmarks;

(c) Indicators of tangible progress and benefits in order to assess performance;

(d) Qualitative and quantitative benefits;

(e) Risk management and mitigation mechanisms to ensure appropriate decision-making with respect to the assessment of the implementation of the strategy.

8. In addition, the General Assembly requested the Secretary-General:

(a) To formulate a system-wide policy for the reuse and safe disposal of decommissioned ICT equipment and to provide an update thereon in his next progress report;

(b) To provide in his next progress report a detailed update on progress achieved in strengthening coordination among all Secretariat entities on ICT activities, as well as with regard to implementing the ICT strategy and compliance with the provisions of the bulletin of the Secretary-General on the organization of the Office of Information and Communications Technology (ST/SGB/2016/11);

(c) In his capacity as Chair of the United Nations System Chief Executives Board for Coordination, to invite the heads of United Nations entities to consider the possible harmonization and sharing of services as well as the related costs of ICT, as appropriate, in particular at field locations, and to report thereon in the context of future progress reports;

(d) To refine his analysis of existing applications and further rationalize and reduce 1,000 applications that are expected to remain in 2020, and to report thereon in his next progress report;

(e) To ensure the expeditious completion of the remaining initiative of the 10-point action plan to strengthen information security, update Member States regularly on its progress and provide information thereon in his next progress report;

(f) To provide in his next progress report an update on progress achieved in ensuring a smooth and timely transfer of responsibilities from the Umoja project to corresponding entities within the Secretariat.

9. The Board observed that the Secretary-General, in his third report on the status of implementation of the ICT strategy, had provided information on benchmarks and benefits to assess performance so as to ensure appropriate decision-making in a dispersed manner on a few areas and had made sporadic mention of coordination achieved with specific entities on such projects as global engineering, conferencing and global sourcing.

10. Furthermore, the Board noted that in his report, the Secretary-General neither indicated the formulation of a policy for the reuse and safe disposal of decommissioned ICT equipment nor provided an update on the progress made in inviting heads of United Nations entities to consider the possible harmonization and sharing of services as well as the related costs of ICT. The Board also noted that no proposal had been made on rationalization to further reduce the number of applications below 1,000.

11. The Administration stated that the progress report of the Secretary-General had been submitted at a high level and not as a manifesto of projects. While the Board agrees that the General Assembly should be presented with a high-level report, it

holds that the details specifically sought by the Assembly should invariably be provided.

C. Governance and leadership

Governance framework

12. The governance bodies/authorities that together establish a governance framework for the United Nations Secretariat are the Information and Communication Technology Executive Committee, the Chief Information Technology Officer, the Information and Communications Technology Board, the Project Review Committee, ICT committees in departments and offices away from Headquarters, the Information and Communications Technology Policy Committee, the Architecture Review Board, the Software Development Coordination Group and an ICT focal point network.

13. The Information and Communication Technology Executive Committee, chaired by the Under-Secretary-General for Management, is the highest-level decision-making body in the Secretariat on overall ICT strategic direction and prioritization and is expected to meet twice a year. The Executive Committee is to review the progress made in the implementation of the ICT strategy and the identification and mitigation of risks on an enterprise-wide basis. The Board noted that the Committee had not met during 2017.

14. The ICT Board is an executive-level advisory body chaired by the Chief Information Technology Officer and comprises members appointed by the Secretary-General. It is responsible for ensuring coherent and coordinated global usage of ICT across departments and duty stations in line with the objectives of the Secretariat and the general policy direction provided by the ICT Executive Committee. The ICT Board is mandated to meet at least once every six weeks. The Board of Auditors observed that the ICT Board had met only once during 2017, in March. At that meeting, an update on progress in the implementation of the ICT strategy had been presented, highlighting the challenges encountered in the consolidation of resources, compliance with governance aspects, the non-release of ICT support personnel to enterprise service delivery centres, the requirement for security reviews of systems, the completion of security awareness training, the classification of information assets, capital investment in ICT and additional investment to support innovation and analytics.

15. The ICT committees are internal or local groups established by departments and offices away from Headquarters following the pattern of the ICT Board. They are tasked with establishing departmental strategies aligned with the overall objectives of the Secretariat, maintaining and updating information on departmental systems, resources and assets, reviewing existing systems to confirm their cost-effectiveness, and ensuring that standard methodologies are consistently used in ICT projects.

16. The Board observed that some responsibilities of the ICT committees overlapped with those of other structures within the governance framework, without established procedures in terms of hierarchy. For example:

(a) Both the ICT committees and the Enterprise Project Management Office of the Office of Information and Communications Technology were responsible for ensuring that standard methodologies were consistently used in ICT projects, although the scope of the committees was limited to departmental or regional projects, while the Enterprise Project Management Office interacted with all the departments and offices in the Secretariat;

(b) The responsibility for the establishment of departmental strategies aligned with the overall objectives of the Secretariat was assigned to the individual heads of ICT units in the regions as well as to the ICT committees.

17. The ICT Policy Committee, chaired by the Chief of Policy, Office of Information and Communications Technology, is tasked with identifying the gaps in Secretariat-wide ICT policies and technical procedures, determining their scope, assigning the drafting of policies to appropriate subject matter experts, and reviewing and adopting their content. The ICT Policy Committee is to meet every month in accordance with its terms of reference.

18. The Board noted that the ICT Policy Committee had met only twice during 2017, in March and April, when it had decided that a priority list regarding the large number of ICT policies awaiting revision should be drawn up. The Board noted that no further meetings of the Policy Committee had been held in 2017 and no decisions on the matter of policy revision had been taken.

19. The Board is of the opinion that, while governance enablers such as frameworks and structures have been put in place, practices are not in line with the prescribed framework.

20. The Administration stated that there were no consequences for non-compliance with governance, and therefore no compulsion to be compliant. The Board holds that an effective implementation mechanism, with positive and negative consequences for action and inaction, is needed to convey the intent of top management across the Organization and ensure the implementation of such initiatives as the ICT strategy.

Project management framework

21. The Board noted that monthly progress reports were being submitted to the project management board, and a standard project management template established by the Enterprise Project Management Office was being followed. However, the Board observed that information on benefits assessment, costing, benefits realized and lessons-learned documents that were part of the project management framework was not evident in relation to these projects. The Board is of the view that the non-inclusion of information on strategic projects precludes the measurement of projected challenges. Furthermore, the Board noted that periodic reporting on projects to governance bodies such as the ICT Executive Committee and the ICT Board had not been carried out, despite the fact that it was required according to the project management handbook.

Performance management

22. One of the critical roles of ICT governance is to monitor the performance of ICT activities and ensure its alignment with the overall goals of the Organization. According to the strategy, the performance management framework will strengthen the management and monitoring of ICT strategic programmes and will demonstrate the value of ICT. The responsibilities of the Enterprise Project Management Office include establishing and implementing a standardized approach to ICT performance management, including metrics, benchmarks and reporting, for all ICT units throughout the Secretariat.

23. The Board noted that, although 29 ICT performance management metrics had been drawn up, covering strategic, management and operational areas, the performance management framework had not been implemented, owing to lack of resources.

24. The Board, however, found no evidence that the issue of lack of resources for the implementation of the performance management framework had been deliberated

on by the governance bodies. In the absence of the implementation of a performance measurement framework three and a half years after the adoption of the ICT strategy, it is not clear how the established governance framework monitors the implementation of the strategy and ensures its alignment with the business goals of the United Nations.

25. **The Board recommends that appropriate processes and practices of the governance framework be followed so that the business goals of the Organization are met through the implementation of the ICT strategy.**

26. **The Board also recommends that the Administration establish a performance management framework with suitable metrics and benchmarks that help align the ICT initiatives with the strategic goal of the United Nations within an established time frame.**

27. The Administration informed the Board that resources used for various purposes had been reduced by the General Assembly in its resolution 72/261, and added that the reduction in resources would make it difficult for the Administration to implement the recommendation.

ICT policy and compliance

28. ICT policy and compliance was taken up as a distinct strategic project with the goal of issuing a body of ICT policies and technical procedures, with a targeted project completion date of 30 September 2015. The scope of the project was subsequently modified to include compliance with policies and procedures, and the project completion date was extended to 31 December 2016. The project was reported as being 100 per cent complete in the third progress report of the Secretary-General.

29. The Board noted that, as of March 2018, 42 policies had been issued since 2001. These consisted of 6 policies on acceptable use, 3 on applications, 2 relating to asset management, 4 on governance, 4 relating to information management, 9 pertaining to infrastructure and 14 relating to security. The Board also noted that six policies, covering the use of mobile devices, videoconferencing etiquette, digital signatures, software asset management, the use of email services and the use of telephony services, were under various stages of consultation and development. In addition, the Board observed that only one new policy, on cloud computing, had been promulgated during 2017.

30. The Board observed that no policies on emerging areas such as the outsourcing of ICT services, end-user device usage, information-sharing, open data and the reuse and safe disposal of decommissioned ICT equipment, had been promulgated to date.

31. The ICT policies issued can be classified as follows:

(a) Secretary-General's bulletins;

(b) Administrative instructions;

(c) Information circulars;

(d) ICT technical procedures;

(e) ICT guidelines;

(f) Others, such as action plans, policy directives, etc.

32. The Board noted that, of the 42 policies, 6 were Secretary-General's bulletins, 3 were administrative instructions, 5 were information circulars, 5 were guidelines and 2 were "others". The remaining 21 were ICT technical procedures.

33. Secretary-General's bulletins and administrative instructions remain in force until they are amended or abolished, while information circulars are in force until they expire. The Board was informed that ICT technical procedures were to be reviewed once a year except for the technical procedure for security incident response, which was to be reviewed twice a year.

34. The Board noted that, of the 14 ICT technical procedures that were due for revision as at 1 January 2017, only one had been revised, in March 2017. By the end of 2017, seven more ICT technical procedures had become due for revision but had not been revised. The Board noted that the technical procedure on mobile devices, due for revision in September 2017, had been revised in April 2018.

35. The Chair of the ICT Policy Committee, expressing concern about the large number of policies awaiting revision, tasked one of its members in March 2017 with coordinating with policy owners to draw up a priority list and a plan setting out what would be reviewed in 2017 by the Committee. However, the Board noted that the Policy Committee had met only twice during 2017, when it had considered two new policy drafts and one scheduled revision. The Board is of the view that the pace of promulgation of new and revised policies must be accelerated in order to keep abreast with the rapidly changing technology landscape. While the Administration informed the Board that the technical procedures had been reviewed and revisions were unnecessary, no documentation supporting such review were provided to the Board.

36. The ICT Policies and Procedures Section of the Global Services Division is mandated to monitor compliance with ICT policies and standards issued across the Secretariat. During 2017, the Division undertook detailed compliance reviews of specific policies at the Regional Technology Centre-Americas,[1] which were expected to be completed by April 2018. The Administration stated that one full-time-equivalent employee (P-3) and one half-time employee (P-5) had performed a detailed compliance review at the Centre.

37. The Board noted that an initiative for policy self-assessment had been undertaken in May 2017. However, the initiative targeted reporting on only 3 out of the 42 policies currently in force. The Administration informed the Board that it had focused only on information security policies and had identified the most important policies for self-assessment, on the basis of the risks related to non-compliance with those policies. The Board noted that, as of March 2018, only 9 out of 37 Secretariat entities had responded to the self-assessment report template that had been circulated as part of this exercise, of which only 3 had reported full compliance.

38. The Administration stated that the Regional Technology Centre had sought an extension of the deadline for the reporting, and the Administration was following up with the departments from which responses were awaited. The Administration also stated that the United Nations would establish a Department of Management, Strategy, Policy and Compliance and would explore options for leveraging these new functions to improve compliance. In addition, it stated that a combination of resource reductions and reform in 2017 had caused efforts to stall.

39. While acknowledging the reply of the Administration, the Board observed that, in accordance with the Secretary-General's bulletin on the organization of the Office of Information and Communications Technology (ST/SGB/2016/11), the Administration continued to hold responsibility for monitoring compliance with promulgated policies and technical standards until such time as any new structure with overlapping responsibilities had been created.

[1] Regional technology centres are responsible for harmonizing ICT services across regions, institutionalizing governance and implementing the ICT strategy.

40. Furthermore, the Board observed that no matters regarding gaps in existing policies or any proposed shift in establishing the compliance function had been brought to the attention of the ICT Policy Committee during 2017.

41. **The Board recommends that the Administration proactively engage with user departments to identify policy gaps in emerging areas and draw up action plans to frame such policies.**

Project implementation

42. In his first report on the status of implementation of the strategy (A/70/364), the Secretary-General reported that 45 per cent of the strategic projects had been completed, with the remaining 55 per cent being on schedule for completion. In his second progress report, he reported that 7 of the 20 projects had been completed. Of the remaining 13 projects, the scope of 10 had been modified or had been the subject of a request for modification that had been submitted to the project management board for approval.

43. In its first annual progress report, the Board had observed that modifications in the scope of nearly half of the strategic projects indicated that initial project formulation had not been comprehensive and that some activities and milestones might not have been included in project formulation.

44. In his third report on the status of implementation of the strategy (A/72/755/Rev.1), the Secretary-General reported that, out of the remaining 13 projects, 5 had been completed, and change requests had been approved by the project management board in respect of the remaining 8, which had been made to adjust the timelines of the projects, to phase the projects to enable better tracking or to close projects that had been fast-tracked. The Board noted that extensions ranging from 9 to 37 months had been given to the eight ongoing projects in 2017, with the cumulative time overruns for those projects ranging from 9 to 42 months compared with the original road map.

Human resources in ICT

Capacity-building and the creation of job profiles

45. The strategy reflects the fact that ICT staff and their expertise are important assets in its implementation and that performance management and the training of staff are interdependent. The Board had reported a shortfall in the achievement of planned targets for capacity-building in terms of substantive and technical information technology skills in its first annual progress report and recommended that the Administration ensure that sufficient funds were earmarked for the implementation of the training plan.

46. In his third report, the Secretary-General stated that additional staff had undertaken training, spanning over 22 ICT courses, and that skills assessment was ongoing. The Administration informed the Board that 89 personnel of the Office of Information and Communications Technology had been trained during technical and substantive ICT training sessions in 2017. The Board was also informed that, while the Office had requested $395,000 for training in technical and substantive ICT skills in 2017, only $162,953 had been received, in three tranches: $30,963 initially, $15,509 in September 2017 and $116,481 in December 2017. In addition, the Administration informed the Board that it had been able to spend only 70 per cent of the funds because most of the them had been disbursed in December 2017.

47. One of the components of the strategy is that the Office of Information and Communications Technology will increase the level of professionalism among staff and ensure that appropriate certifications needed for the performance of ICT functions

are obtained. The Board noted that the Administration had been unable to provide data on the number of certifications obtained by ICT staff across the Secretariat, as it did not maintain such data.

48. The Administration replied that, although it was unable to provide a list of certifications achieved for each person, that did not mean that no progress had been made in this area. Many of the training classes ended with a certification. For example, Information Technology Infrastructure Library and PRINCE2 training provided certification upon the completion and passing of the relevant examination.

49. The Board acknowledges the response of the Administration, but is of the view that certifications should be achieved and a record thereof maintained.

50. **The Board recommends that the Office of Information and Communications Technology make efforts to ensure that appropriate certifications needed for the performance of ICT functions are obtained and recorded appropriately.**

D. Modernization

Umoja mainstreaming

51. Umoja mainstreaming entails the transfer of responsibilities from the Umoja project to the corresponding entities within the Secretariat. The General Assembly, in its resolution 70/248 A, requested the Secretary-General to develop detailed transition plans for the long-term support arrangements for and mainstreaming of Umoja. The Secretary-General designated responsibility for mainstreaming the technical component of Umoja to the Chief Information Technology Officer. In its resolution 71/272 B, the Assembly reiterated the importance of ensuring a smooth and timely transfer of responsibilities from the Umoja project to corresponding entities within the Secretariat.

52. The Board was informed that the mainstreaming process would be a fairly complex transition involving the reprofiling of resources, the reorganization of functions and the cross-training of personnel, as well as the downsizing of the project team and capacity-building in the business area.

53. The Administration stated that the eighth and ninth progress reports of the Secretary-General on the enterprise planning system had laid out the reorganization of functions and reprofiling of resources, which would ensure that the Umoja project would transfer to the Office of Information and Communications Technology an integrated and well-equipped techno-functional team to support the maintenance of, and continuous improvements in, Umoja functionality. A part of the current Umoja team would also be mainstreamed into the business area. The Administration added that the mainstreaming would continue to be presented to the General Assembly through Umoja progress reports. In addition, it stated that the mainstreaming of Umoja personnel was expected to occur as a "lift and shift"[2] once the project had been successfully completed, and could not be expedited without compromising the development and deployment of Umoja Extension 2.

54. The Board noted that the approach taken to the mainstreaming of Umoja had shifted significantly since the implementation of the strategy, and that it appreciated

[2] "Lift and shift" is a strategy for moving an application or operation from one environment to another without redesigning the application or operation. In the lift-and-shift approach, certain workloads and tasks can be moved from on-premises storage to cloud storage, or data operations might be transferred from one data centre to another. The term is also used to refer to the movement of personnel from one organizational unit to another.

the fact that the completion of the project was interlinked with the deployment schedule and stabilization of Umoja. However, the Board is of the view that the Administration must prepare carefully for the eventual mainstreaming of Umoja, to ensure that the process is carried out smoothly.

55. **The Board recommends that the Administration take appropriate measures to mitigate risks related to the project components under Umoja mainstreaming and ensure that the Office of Information and Communications Technology, in conjunction with the Umoja project office, ensures knowledge transfer to facilitate Umoja mainstreaming as and when it happens.**

56. The Administration indicated that the risks identified in relation to staff had been mitigated, since those risks were being carefully monitored and were no longer significant.

Information security

57. The Board examined the security landscape in terms of selected areas covered under the information security framework proposed in the ICT strategy.

Visibility of ICT assets

58. In his third progress report, the Secretary-General indicated that the visibility of ICT assets of the United Nations was currently limited to the recording of ICT assets in Umoja to address their life cycle needs. The Administration informed the Board that a global network monitoring initiative had been launched as part of the ICT strategy. The ICT assets — servers, storage and network components — available at the enterprise data centres were being centrally monitored for capacity planning and incident management at the facilities in Valencia, Spain, and Brindisi, Italy. In September 2017, assets at two data centres and the United Nations Headquarters campus network in New York had been added to the central monitoring capability. The offices away from Headquarters and the regional commissions were scheduled to be incorporated in a phased manner during 2018, subject to funding availability.

59. The Administration also informed the Board that the Hewlett-Packard Configuration Management Database tool had been implemented at the Department of Field Support Global Service Centre in Valencia and Brindisi, which provided comprehensive information (including inventory information, as well as dependencies and hierarchies of affected services in the event of the failure of any underlying assets) about all ICT assets in production at the Global Service Centre. As the Database was linked to the Department's change management system, any commissioning or decommissioning of ICT assets at the Centre was registered through predefined processes. In addition, the system used asset inventory information (such as equipment ageing) from Umoja to assess risk and likelihood of failure. The Centre also conducted comprehensive annual reviews of its ICT assets that were past their useful life, prioritized the replacement of high-risk assets and monitored those that could not be replaced. Furthermore, 82 per cent of ICT assets in peacekeeping missions were covered by Microsoft System Center Configuration Manager as of March 2018. In addition, the Administration stated that although progress had been made in asset configuration management and control, limited visibility remained a problem, and the Administration needed to continue to work with the Information and Communications Technology Division, offices away from Headquarters and regional commissions to consolidate System Center Configuration Manager and the Configuration Management Database.

60. The Board noted that 223 servers were operating with obsolete or unsupported technology (Windows 2000, legacy Linux and servers on a legacy network) across the Secretariat as of March 2018. The servers were not under centralized resource

management. In response to an enquiry as to whether any specific road map for their decommissioning had been created, the Administration informed the Board that, further to the approval by the General Assembly of section 33, Construction, alteration, improvement and major maintenance, of the regular budget, all obsolete assets that were covered by that section would be replaced by the end of 2019.

61. The Board observed that the assets covered under the provision would not include hardware resources that were running and had not been decommissioned. The Board also observed that the policy on the disposal of computer equipment, promulgated in 2001, covered only Headquarters and had not been revised since.

62. In addition, the Board noted that multiple incident tracking systems — the open-source ticket request system at the Economic Commission for Latin America and the Caribbean, BMC Service Desk Express at the Office of the United Nations High Commissioner for Human Rights (OHCHR) and iNeed customer relationship management in the Office of Information and Communications Technology — continued to be in use to track security incidents. The Office of Information and Communications Technology currently had visibility into global security incidents recorded in iNeed that covered 10,000 internal users. The Board is of the opinion that security incident tracking remains fragmented, which makes it difficult to identify common issues and apply global solutions.

63. The Administration stated that, as of February 2018, the Office of Information and Communications Technology had visibility into all information security incidents recorded in iNeed globally, including at field missions, i.e., for a total number of about 50,000 users. The Board, however, noted from the details of the applications included on the Unite Applications website that iNeed served only 10,000 internal users.

64. The Board is of the opinion that, although progress has been made, the objective of the establishment of full visibility with regard to all ICT equipment and timely updates of all systems had not been achieved as of March 2018.

Continuous monitoring through a managed intrusion detection system

65. The strategy includes the establishment of a managed intrusion detection service to centrally collect, correlate and analyse internally generated alerts, notifications and system log information.

66. The Board noted that the coverage of the managed intrusion detection system was limited to networks at the enterprise data centres and duty stations in New York, Santiago, Geneva, Vienna, Addis Ababa, Beirut and Bangkok and to partial coverage in Nairobi. The networks at local and subregional offices and traffic from missions were covered only when routed through the enterprise data centres. The Administration informed the Board that the high cost of the deployment of additional sensors, even at the lowest capacity level, prevented extension of the coverage of this service, and added that that risk should be considered mitigated if the networks were properly segmented and on-network-based controls were implemented.

Network segmentation

67. Initiative 4 under the strategic project on information security (10-point action plan) is the implementation of segmentation of network zones for data centres/server rooms and user zones in adherence to established architecture and procedures.

68. While reviewing the progress made in 2017, the Board was informed that, for the Headquarters campus network in New York, legacy segments were still in place and the decommissioning or revision of the architecture of the application in those segments had to be completed before 100 per cent compliance with respect to network

segmentation at targeted data centres could be achieved. In terms of extending network segmentation at the user level, as previously planned, the Administration stated that additional funds, which were currently unavailable, needed to be identified. The Board was also informed that the Administration had received no updates for 2017 from offices away from Headquarters and regional commissions on network segmentation. The Board is therefore unable to obtain assurance that this initiative has progressed beyond the status described in the previous report.

Policy development, compliance and enforcement

69. The information security framework reported as having been established in the ICT strategy document indicated that additional policies, guidelines and technical procedures would be developed and enforced to protect ICT resources and data in a consistent and comprehensive manner. The Board noted that in 2016, there had been in place 14 policies that specifically addressed information security at the Secretariat and 8 more that addressed security aspects but were categorized under infrastructure. The Board also noted that, of the 14 policies pending revision in 2017, only 1 policy, relating to minimum security requirements for public websites of the United Nations, had been revised and promulgated in March 2017. Furthermore, the Board noted that a new technical procedure on cloud computing had also been issued. The Board was informed that two new security policies, on digital signatures and electronic records and on software asset management, had been drafted as of March 2018.

70. In addition, the Board observed that the Chief Information Technology Officer, in an internal memo addressed to heads of departments in May 2017, had requested the departments to conduct internal or third-party reviews of their websites and web applications. As a follow-up, self-certification forms together with instructions had been sent out to the ICT managers of 37 entities across the Secretariat to report compliance with respect to three policies — minimum security requirements for websites, access control, and the implementation of security updates on 1,462 websites and web applications owned by those entities. The Administration informed the Board that the main benefit of the self-certification approach had been to transfer risk to parties that had the ability to address them. The extent of compliance with the self-certification initiative did not provide assurance regarding compliance with the security requirements.

71. The Board noted with concern that, as of March 2018, 28 of the 37 entities had not responded to the self-certification compliance initiative. The Board also noted that, of the nine departments that had responded, only three had reported full compliance with all three policies and six had reported partial compliance. In addition, the Board noted that the external information security assessment of only one website (the Department of Public Information website) of the 1,462 websites/web applications had been conducted to date.

72. Furthermore, the Board noted that, out of 38,105 staff working across the Secretariat as at 31 December 2017, only 17,906 had completed the mandatory foundational information security course developed in 2014. The Administration informed the Board that even external personnel (contractors, consultants, interns and other temporary users) were required to take the course according to the provisions of the Secretary-General's bulletin on the use of ICT resources and data (ST/SGB/2004/15) and stated that, as at 31 December 2017, 35,611 external personnel had completed the mandatory module of the information security awareness course. However, the total number of such personnel who were supposed to have taken the course was not provided.

Data classification schemes and privacy policy

73. In the ICT strategy, it is asserted that the Office of Information and Communications Technology will initiate a programmatic activity to develop, in collaboration with the Office of Human Resources Management and other relevant stakeholders, a privacy policy for the Secretariat. The Board observed that no privacy policy had been issued for the Secretariat as of March 2018.

74. The Administration informed the Board that the Office of Information and Communications Technology, together with Global Pulse,[3] had co-led an inter-agency working group in 2017 and 2018 to conduct research on and develop a common data privacy policy and that the resulting policy would be ready later in 2018 for consideration by the Secretariat with a view to its formal adoption.

75. The policy on information sensitivity, classification and handling makes heads of departments responsible for the classification of data into three tiers according to nature of sensitivity, namely, "unclassified", "confidential" and "strictly confidential". The Board observed that there was no periodic reporting mechanism for monitoring compliance with the policy and noted that the Office of Information and Communications Technology reviewed the classification of data whenever new systems were put in place, during major system upgrades and when content was migrated between systems.

76. The Board was informed that the Office of Information and Communications Technology planned to include visible classification markers, including for "unclassified" information, in standard Office software as part of the ongoing roll-out of Office 365. The Administration stated that the Azure Information Protection feature of Office 365 provided a user-friendly and transparent mechanism for labelling documents, in compliance with organizational policies, as well as for applying specific protective measures such as encryption or digital rights management. It also asserted that the inclusion of visible markers would increase awareness of and compliance with classification requirements, although that could not be a comprehensive solution.

77. The Board is of the opinion that, while the use of visible markers could help to raise security awareness, the changed approach would not include documents and data nested within the large number of databases currently in use. The Board is of the opinion that, while there has been improvement in the visibility of ICT assets, progress on other critical elements, such as the implementation of centralized incidence tracking, network segmentation, the promulgation of and ensuring compliance with security policies, and the classification of information assets, was slow in 2017 and the information security resources and landscape has remained fragmented three years after the adoption of the strategy.

Progress on the 10-point action plan

78. The 10-point action plan was taken up as a strategic project aimed at the implementation of short-term measures to address the most urgent shortcomings in information security. The Board noted that, in his third progress report (A/72/755/Rev.1), the Secretary-General indicated that the plan was 100 per cent complete and moving to maintenance mode and that a longer-term information security road map had been developed. The Board observed that some of the 10 initiatives, such as intrusion detection, the promulgation of draft policies and the classification of information assets, were still ongoing as of March 2018.

[3] Global Pulse is a flagship innovation initiative of the Secretary-General on big data.

79. The Board recommends that: (a) the Office of Information and Communications Technology continue to work with the Department of Field Support, offices away from Headquarters and regional commissions to improve the visibility of ICT assets; (b) a cost-benefit analysis be conducted in order to decide on extension of the scope of intrusion detection services to include all critical ICT resources across the Secretariat; (c) priority be accorded to the completion of network segmentation as originally planned; and (d) efforts be made to finalize the data privacy policy for the United Nations at the earliest.

80. The Administration maintained that the initiatives had been either completed or transitioned into current activities, such as the operation of the intrusion detection system, various awareness programmes and threat intelligence management. Those activities were ongoing, as deployed systems needed to be maintained, updated and monitored and detected incidents responded to.

81. As regards part (b) of the recommendation in paragraph 79 above, the Administration stated that the work was not resourced, and although efforts had been made to provide for this function through a proposed charge-back model, offices and departments had not agreed to the funding model proposed.

82. While the Board acknowledges the difficulties indicated by the Administration, the Board is of the view that, in an environment of heightened cybersecurity concerns, it is essential that the Organization make an informed decision with regard to the implementation of intrusion detection services. The Board therefore holds that the Administration needs to make further efforts to ensure that a cost-benefit analysis on the use of intrusion detection services is conducted.

Disaster management

83. Information technology disaster recovery is one of the core elements of the organizational resilience management system of the Secretariat, approved by the General Assembly in its resolution 67/254 A. In the strategy, it is proposed that the information technology disaster recovery process be strengthened in accordance with the decisions of the Assembly and the recommendations of the Board.

84. The Secretary-General, in his first progress report, stated that the scope of the disaster recovery project would be to develop a Secretariat-wide disaster recovery plan to ensure that critical ICT systems could be effectively failed over[4] in case of an emergency. The targeted completion date of the project was 31 December 2015. That date was extended to 31 December 2016 in the second progress report of the Secretary-General. In his third progress report, the Secretary-General stated that phase I of the project, comprising the review of the list of Secretariat-wide critical applications, had been completed on 31 December 2016. The Board was also informed that phase II was complete except for disaster recovery exercises, which were in progress, with an expected finish date of 28 June 2019.

85. The Board observed that phase II of the disaster recovery project had been initiated on 17 October 2017, following a gap of 10 months after the completion of phase I in January 2017. This indicates the slow pace of implementation of the project.

86. The ICT benchmarking assessment report, submitted in August 2015, identified a lack of consistency in terms of what was defined as critical. It also indicated that the lack of a definition of mission-critical applications, as opposed to vital applications, created an inability to prioritize restoration. It recommended prioritization of the disaster recovery list in consultation with the business owners

[4] Switching an application or ICT service system from its primary data centre to a secondary data centre.

and their defined recovery time objective and recovery process objective, and the strengthening of disaster recovery through a disaster recovery framework that identified and segmented mission-critical and United Nations-critical applications out of the larger pool of existing critical applications. The Administration stated that the criticality of systems and applications had been defined by the Senior Emergency Policy Team, chaired by the Chef de Cabinet. The definition of critical systems set a high bar to ensure that the significant additional resources required to meet advanced disaster recovery objectives were allocated only where they were absolutely necessary. According to that definition, a system or application is critical if it supports a time-sensitive critical business function that cannot be effectively performed without that system or application.

87. In its first annual progress report, the Board also recommended that the criteria for determining the criticality of applications be reviewed and the number of critical applications ascertained on the basis of an analysis, and that the number of critical applications be progressively reduced by replacing them with new systems and enterprise-level applications through consolidation and rationalization. The Board noted that the Administration had not reviewed the criteria for determining the criticality of applications and that the number of critical applications remained that identified by the Senior Emergency Policy Team in 2016. The Board also noted that the Administration had yet to act upon the Board's recommendation with regard to review, which remained pertinent in view of the large number of applications in use at the United Nations, many of which were essential to the business of the Organization.

88. The Global Service Centre ICT applications disaster recovery plan specifies that the plan will be tested on a regular basis, with two full-interruption tests performed for each critical application and with service performed on a yearly basis.

89. The Board noted that phase II of the disaster recovery project, which covered disaster recovery exercises, comprised seven components, covering seven applications, and one database farm infrastructure. This included only 3[5] of the critical applications from the identified list of 24. Out of these, the disaster-recovery testing of one critical application, Unite Docs, had been scheduled for 18 November 2017. The exercise had failed to execute the failover for Unite Docs, owing to the failure of Department of Field Support storage synchronization, and the roll-back process had been executed. It had been decided that the Unite Docs disaster recovery exercise would be planned after the Department had resolved the storage synchronization issue. The additional risk identified after the exercise was that the Department's storage synchronization issue would affect the entire disaster recovery exercise across components.

90. The Board noted that this issue remained unaddressed as of January 2018. The Board also noted that one of the risks associated with the disaster recovery process had been identified as "no scenario being in place for a real disaster". The mitigation plan for identifying application priority, teams and prerequisites had yet to be executed as of January 2018.

91. The Administration responded that the failed tests of November 2017 had led to a critical review of the underlying technologies as well as the design of applications. As a result, design changes would be implemented, starting with the replacement of the Umoja infrastructure in 2018.

92. The Board is concerned about the timely completion of the project with the objective of ensuring that critical ICT systems can be effectively failed over in the event of an emergency, given the stalling of the disaster recovery exercises and the need to redesign the disaster recovery architecture.

[5] Umoja, Unite Docs and EarthMed.

E. Transformation

Application rationalization/consolidation

93. In the strategy, it is stated that upgraded security, combined with clearly defined standards, will support the retirement of unsecure applications. One of the strategic projects described in the first progress report of the Secretary-General was the project aimed at the consolidation and rationalization of applications. Phase I of the project was completed in July 2015. In his second progress report, the Secretary-General reported that the number of applications had been reduced from 2,340 to 1,652 through planned consolidation and migration, and that the goal was to further reduce their number to 1,000 by the end of 2020. In his third progress report, the Secretary-General reported that the enterprise application centres in New York, Vienna and Bangkok coordinated their application development and harmonization and that they had further reduced the number of legacy applications to 1,220 in 2017.

94. As a result of the United Nations ICT assessment conducted in 2015, it was recommended, inter alia, that custom in-house applications be replaced with commercially available off-the-shelf[6] software, as that would help to reduce the Organization's costs. It was also recommended that the costs of employee development and maintenance of custom in-house applications be evaluated.

95. The Board observed that the application rationalization project, a five-year plan for the period 2016–2020, did not refer to the development of guidelines or a gradual shift towards commercially available off-the-shelf software. In addition, there had been no evaluation of the cost of employee development and maintenance of custom in-house applications.

96. The Board noted that, as of March 2018, there were 1,190 applications, of which 1,027 were in production, 2 in the development phase, 2 in the pilot phase and 159 in a "sunset" stage.[7] It was also observed that a solution for rationalization had not yet been decided upon with respect to 153 of the 1,027 applications in production. Moreover, 981 of the 1,190 applications were in-house (including custom by vendor and unit specific). The Board also noted that 457 of the 1,027 applications in production, relating to 18 categories/areas, were to be maintained.

97. The Board examined 12 applications in use related to human rights, which were being maintained, and noted that 3 of them were designed for case management, 8 for document and record management and 1 for contributions. The Board noted that the three case management applications and seven of the document and record management applications were used by OHCHR, while one document and record management application was used by the United Nations Assistance Mission in Afghanistan. This is indicative of possible duplication and provides opportunities for further rationalization.

98. The Board also observed that the number of applications to be maintained varied continuously in the monthly application rationalization reports issued between January and October 2017, indicating a lack of clarity regarding the actual number of applications that were to be maintained.

99. The Administration indicated that the reason for these variations was not lack of clarity, but rather the fact that information and data on applications maintained in Unite Applications was provided directly by the designated technical focal points.

[6] A commercially available off-the-shelf product is usually a computer hardware or software product tailored for specific uses and made available to the general public. Such products are designed to be readily available and user-friendly. A typical example of such a product is Microsoft Office or antivirus software.

[7] "Sunsetting", in a business context, is the intentional phasing-out or termination of something.

A yearly global inventory exercise was conducted; however, it was up to the departments to maintain their respective application data. The Administration added that this landscape was continually changing, since applications continued to be decommissioned on an ongoing basis.

100. The Administration also stated that the number of applications had been reduced from 2,340 (as at 1 July 2014) to 1,220 in 2017, and added that 679 of those 1,120 applications had been mapped to commercially available off-the-shelf applications. Referring to paragraph 3.8 of the application management strategy of the United Nations, in which it is stated that, where feasible, application road maps will be developed with a focus on consolidating local or departmental applications into currently existing enterprise-wide applications such as iNeed, Inspira, Unite Docs, Unite Connections, Unite Web and Unite Conferences, the Administration added that of those six enterprise applications, four were commercially available off-the-shelf solutions and two were enterprise standard solutions and therefore, by default, the application migration strategy prioritized the migration of legacy applications to commercially available off-the-shelf solutions. Furthermore, the Administration agreed that there might be opportunities to further reduce the target of 1,000 applications by reducing the overlapping of those remaining once the target had been reached, with a continued focus on shifting towards enterprise standard and commercially available off-the-shelf solutions. In July 2018, the Administration also indicated that, of the 1,357 applications retired to date, 727 had been migrated to commercially available off-the-shelf solutions and 394 had been retired without replacement. While appreciating the work done by the Administration in migrating the retired applications to commercially available off-the-shelf solutions, the Board noted the need for further concerted efforts, as most of the remaining applications were in-house.

101. **The Board recommends that the Administration identify the number of core applications that are required to be maintained and work towards rationalizing applications by identifying overlapping applications within the same area.**

Website rationalization/consolidation

102. In his first progress report (A/70/364), the Secretary-General described the milestone activities carried out under the website consolidation and rationalization project, such as the development of a website technology strategy and plan, the development of a United Nations website consolidation solution, harmonization and the identification and remediation of websites. The project was targeted for completion by November 2017, and it was reported that 42 per cent of the project was complete. In its first annual progress report (A/72/151), the Board noted that the project had not been mentioned in the second progress report of the Secretary-General (A/71/400).

103. In his third progress report (A/72/755/Rev.1), the Secretary-General reported that phase I of the project had been completed on 30 June 2017 and phase II had been initiated on the basis of a new plan and a targeted completion date of 31 December 2020, which reflected an extension of 37 months compared with the original targeted completion date of 30 November 2017. He also reported that 30 per cent of the project was complete.

104. An analysis of the monthly project status reports on the implementation of the ICT strategy issued from January to June 2017 revealed that the remaining activities under phase I had been shifted to phase II. The Board noted that, although phase II had been scheduled to begin in July 2017, it had been delayed, owing to the loss of resources and recruitment to replace them. In December 2017, it was reported that the

project was on hold, pending a decision by the Management Committee, and in January 2018 it was reported that the project was awaiting sponsorship.

105. The Board noted that not much progress had been made towards the rationalization of websites in 2017 and that the project was currently on hold. The Board is concerned that this may have an impact on the plan of the United Nations Secretariat to increase the efficiency of website operations and to achieve economies of scale through strategic changes in the current operating model. The Board is of the opinion that, although the completion date of the entire project has been pushed back to December 2020, the pace of the progress achieved so far does not provide assurance that that timeline will be adhered to.

106. The Administration stated that, over the course of the project, it had leveraged the opportunity to redesign and upgrade the web content management platform (Unite Web) and to build in more robust compliance with technology, security, branding, multilingualism and accessibility for the disabled. It added that the reason for initiating phase II had been that, although these changes would take additional development time, their impact would be the ability to accelerate the website rationalization programme overall. The Administration also added that, owing to a change in technical strategy and the improvements made in the Unite Web solution as from April 2017, 12 major public websites had been launched, 6 legacy sites had been decommissioned and 25 websites were in development.

107. Furthermore, the Administration stated that the enterprise application centre in New York had conducted an in-depth analysis of the remaining websites to confirm which ones were still in scope, and had found that many of the initially identified websites were externally owned and operated and therefore not under United Nations control or compliance. The Administration added that, at a meeting of the Management Committee held in October 2017, the Chief Information Technology Officer had presented web harmonization principles, standards and timelines, together with objectives and decisions, which had been endorsed at the subsequent meeting, held in November 2017, establishing clear Secretariat senior leadership commitment and confirmed compliance measures. The Administration also added that it was confident that considerable progress would continue on this programme as departments continued to upgrade their non-compliant websites to Unite Web in adherence to the Management Committee decision taken in November 2017, which had made compliance compulsory. Subsequently, phase II of the website rationalization project was relaunched. In addition, the Administration stated that the enterprise application centre in New York had also assessed the previous web inventory and imported more than 300 websites into Unite Applications, which had been enhanced to include data on website compliance, and that it had since engaged the Department of Public Information and was establishing a new compliance workflow that would be applied to all new websites in accordance with the Management Committee's decision.

108. **The Board recommends that clear milestones be set to avoid the deferral of timelines and to effectively monitor projects.**

109. The Administration stated that it could not force departments to migrate their websites and that success depended on the cooperation of all departments. While the Board appreciates the practical difficulties faced in this process, it holds that the Administration needs to ensure the involvement of all departments.

F. Innovation

110. The strategy hinges on the understanding that core ICT services must be improved where necessary and fully maintained, and the strategic drivers support that

goal. If technology is changing the way in which the Secretariat works, and as core services are improved and stabilized, it is inevitable that innovation will play an important role in the strategy to better assist in the delivery of United Nations mandates and in supporting the post-2015 development agenda. The strategic driver of innovation is covered in phase II of the strategic road map.

111. In its first annual progress report (A/72/151), the Board recommended that the Office of Information and Communications Technology develop a detailed plan of action on innovative emerging technology in consultation with stakeholders. In response, the Administration stated that a strategy and an action plan would be developed as part of phase II of the implementation of the ICT strategy and that it was contingent on progress in consolidation and the availability of resources to ensure successful implementation.

112. In his third progress report (A/72/755/Rev.1), the Secretary-General referred to the establishment of United Nations Technology Innovation Labs, using the cutting-edge frontier technology currently available, such as blockchain, artificial intelligence and the Internet of things. The Board was informed that plans called for five Technology Innovation Labs to be set up, in Egypt, Finland, Germany, Hungary and Malaysia. Of those five proposed Labs, the Lab in Finland was in a pilot phase and the remaining four were subject to approval by the General Assembly. The Board was also informed that a budget, along with office space for three years, had been committed to for the Labs in Finland and Malaysia, but no budget had yet been committed to for the other three Labs. In addition, the Board was informed that the estimated launch date for the Labs in Egypt and Finland was the fourth quarter of 2017, while the remaining three Labs were expected to be launched by the end of 2018.

113. The Board is concerned that the setting-up of the Labs may be delayed, which would lead to delays in reaping the benefits of the proposed programme.

114. **The Board recommends that the setting-up of the United Nations Technology Innovation Labs be monitored closely to ensure adherence to the prescribed timelines.**

Optimal utilization of ICT resources

115. In his second progress report (A/71/400), the Secretary-General stated that the Office of Information and Communications Technology and the Department of Field Support had undertaken a review of assets and acquisitions in May and June 2016 and ascertained that there was an opportunity to move from individual to enterprise-wide licensing with significant benefits to the Organization. The Board noted that the same observation had been made by the Secretary-General in his third progress report (A/72/755/Rev.1) without any indication that the opportunity had been explored.

116. In his third progress report, the Secretary-General indicated that, out of the total ICT assets (peacekeeping), which had a purchase value of $642.5 million, assets with a purchase value of $229.2 million were still in use, although they had passed the end of their useful life. Likewise, assets having a purchase value of $27.2 million were still in unit stock, although they had passed the end of their useful life. He also indicated that the non-replacement of network equipment had the potential to negatively affect the safety and security of staff, as well as eroding confidence and reducing productivity in field missions. The resources needed for the replacement of critical assets for 2018/19, based on a risk-assessment framework developed by the Department of Field Support, had been projected to be $148.1 million.

117. The Board observed that the fragmented governance of ICT assets had hindered planning for the augmentation of the assets in a phased manner, which had resulted in a need for the immediate replacement of nearly 25 per cent of existing assets critical

for field operations. The Board noted that the dispersed nature of the monitoring of assets was not in line with the goals of the ICT strategy. Furthermore, the Administration had not identified the obsolescence of critical ICT assets in the field in a timely manner to support the development of a phased augmentation plan in terms of asset life, technological change and resource availability.

118. **The Board recommends that the Administration develop a long-term augmentation plan, considering asset life and technological change, and indicate the requirements in budget requests in a timely manner.**

119. The Administration stated that the requirement had been formulated and communicated in the context of the budget, but that no funding had been approved. While the Board acknowledges the response of the Administration, it notes the need to continuously highlight the issue to ensure that corrective action is taken sooner rather than later.

Global sourcing

120. In the strategy, it is stated that the Office of Information and Communications Technology will focus on defragmentation, the retirement of systems and global sourcing to ensure that all IT resources are optimally managed. It is also stated that the implementation of the proposed new processes, governance and organizational structure will allow contracts to be managed more efficiently and optimize buying power, conditions and the level of recourse that the United Nations has in respect of ICT contracts. It is added that global sourcing will be implemented using Umoja to support the integrity and visibility of the process and will be compliant with the International Public Sector Accounting Standards, with the primary target areas being voice and data communications and the purchase of hardware and software licences.

121. The Board observed that during 2017, the Office of Information and Communications Technology had not finalized any global contracts, although two contracts were expected to be awarded, in 2018 and 2019. Furthermore, in his third progress report, the Secretary-General had indicated that the SITA telecommunications contract would be extended to Headquarters and that direct negotiations were under way with two major cloud computing service providers for the establishment of a global system contract for building, deploying and managing applications and services through a global network of managed data centres. The Board noted that the targeted completion date for the global sourcing strategy project, which had initially been March 2017, had now been extended to February 2019.

122. In addition, the Board observed that the Secretary-General had reported 65 per cent progress in respect of the completion of the global sourcing strategy in his second progress report, while 46 per cent progress had been cited in his third report, although the scope of the project had remained the same. This raised questions about the measurement of the percentage of project completion.

123. The Board is of the view that delay in finalizing the contracts and failure to identify new global sourcing opportunities in 2017 have prevented the Organization from taking advantage of better prices and global discounts.

124. The Administration replied that the global sourcing project was progressing and cited the instances presented in the third progress report of the Secretary-General, noting that new contracts were expected to be awarded between the second half of 2017 and the first half of 2018. The Administration added that a Contracts Management Unit had been put in place within the Operations Coordination Section of the Office of Information and Communications Technology in support of the administration of contracts pertaining to the Office and the Information and Communications Technology Division of the Department of Field Support.

125. The Board noted that all of the instances presented in the third progress report of the Secretary-General in support of global sourcing had been under way since 2016.

126. **The Board recommends that the Administration identify and document global sourcing opportunities along with an estimation of savings.**

127. **The Board also recommends that pending contracts be finalized with the established timelines to enable optimal utilization of resources.**

128. In response, the Administration stated that since 2016, two new contracts had been awarded, namely, the Microsoft Enterprise licence agreement and the Tableau Software agreement. The Administration added that it had achieved a 7 per cent volume discount on SITA connectivity services and expected to achieve 11 per cent by the fourth quarter of 2018. In addition, the Microsoft Enterprise licence agreement had been updated to include the newest products at additional discount levels, ranging from 20 per cent to 57.4 per cent compared with government (level D) pricing, and the new agreement with Tableau Software had included a discount of 40 per cent compared with the list price.

129. While acknowledging the details of savings provided by the Administration in its response above in July 2018, the Board noted that the details of the savings achieved had not been included in the third progress report of the Secretary-General, nor had they been provided at the time of the field audit, precluding verification by the Board.

Defragmentation

130. In order to reduce the fragmentation of ICT resources across the Secretariat, the strategy provided for the implementation of an enterprise delivery framework, with the transitioning of data centres to the enterprise data centres in Brindisi and Valencia; the deployment of applications through the enterprise application centres in Bangkok, New York and Vienna; and consolidation of the service desks across the Secretariat into enterprise service desks, with five hubs (in Bangkok, Brindisi, Geneva, Nairobi and New York).

131. The Board noted that, as indicated in the project status report issued in January 2017, the completion date of the project had been extended from March to December 2017 and the project was 34 per cent complete. The project had been reported to be 78 per cent complete in February, March and April, which had increased to 83 per cent in June. The project had been reported to be on hold since August 2017, and, according to the progress report issued in December 2017, the completion date had been extended to December 2018.

132. In respect of data centre consolidation, the Secretary-General indicated in his third progress report that it had been completed. However, the Board noted that only a few applications had been migrated to the data centres and that the migration road map was being re-evaluated by the enterprise application centres, taking into account the emerging hybrid cloud architecture, which would allow certain application components to be hosted in a public cloud.

133. The Administration replied that, although the implementation of the consolidation strategy had been spotty, it reflected some significant achievements, namely, the consolidation of computing service desks at Headquarters and the establishment and expansion of the Unite Service Desk. The Administration stated that the causes for the delays had been related both to technical obstacles in implementing a global ICT strategy and to the current structure of the delegation of authority, which allowed duty stations and entities to have significant independence with respect to decisions concerning ICT matters, including ICT budgets. It was also stated that conflicting priorities and budget reductions had limited the ability to coordinate investment in the

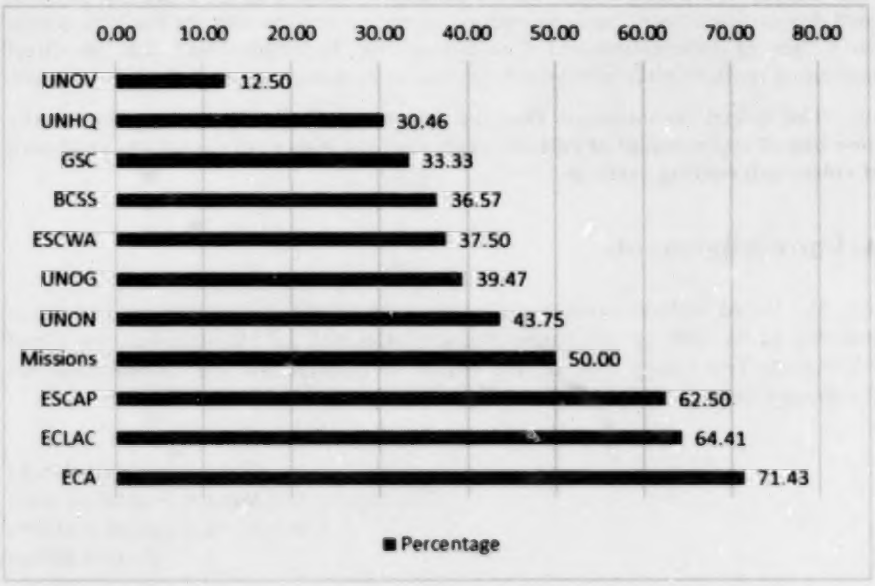
modernization of ICT services and infrastructure. However, the exact causes of lack of proper support for Organization-wide consolidation of ICT services needed to be investigated; these involved "budget owners" that had driven allocation of ICT resources that had not been aligned with the objectives of the strategy of the Office of Information and Communications Technology.

Videoconferencing services: availability of infrastructure

134. Under the strategy, videoconferencing services should be harmonized globally through the establishment of technical standards, standard operating procedures, tools and operations. In his first progress report, the Secretary-General reported a significant increase in the demand for conference support across the Secretariat; in his second progress report, he noted the need for significant updating of and investment in infrastructure as well as the upgrading of equipment; and in his third progress report, he detailed the review and updating of the existing technical procedure for operations and standards, while stating that the trend of an increased number of videoconference sessions had been confirmed by a recent analysis.

135. The Board examined the number of videoconferencing services across the United Nations and found that over the years, the reliance of the United Nations on such services had been increasing. From an examination of the inventory of global videoconferencing equipment available at multiple locations, the Board noted that a significant proportion of such equipment in a number of locations was beyond its useful life, as shown in the figure below.

Percentage of United Nations videoconferencing equipment at the end of its useful life



Source: Office of Information and Communications Technology.

Abbreviations: BCSS, Broadcast and Conference Support Section; ECA, Economic Commission for Africa; ECLAC, Economic Commission for Latin America and the Caribbean; ESCAP, Economic and Social Commission for Asia and the Pacific; ESCWA, Economic and Social Commission for Western Asia; GSC, Global Service Centre; UNHQ, United Nations Headquarters; UNOG, United Nations Office at Geneva; UNON, United Nations Office at Nairobi; UNOV, United Nations Office at Vienna.

136. The figure above indicates that more than 30 per cent of videoconferencing equipment is at end of its useful life at 10 of the 11 locations listed, including missions. The age and condition of the equipment used in conference facilities and other audiovisual communications systems can have a significant impact on the overall performance of technical infrastructure, and as hardware ages it becomes more difficult to maintain and support. In addition, the age of the equipment also has an impact on its capacity to receive the latest software updates if manufacturers stop supporting it.

137. In response, the Administration stated that the original proposal of the Office of Information and Communications Technology for section 33 of the regular budget for the biennium 2018–2019 included the objectives of bringing facilities at offices away from Headquarters up to current standards, including security and accessibility requirements; replacing obsolete and end-of-life equipment in order to maximize return on investment; properly maintaining assets of the Organization; and upgrading/updating security strength and methods to address current threats posed to audiovisual, multimedia, conference management and videoconference equipment and associated systems. The original estimate provided for that proposal had been $30.1 million; however, the Office had been requested to stay within the current budget envelope for section 33, which was $12.2 million.

138. The General Assembly, in its resolution 71/272 B, stressed that further investment in the videoconferencing system should be accompanied by effective control over and reduction of travel of staff members, including by strict implementation of paragraph 3.2 of the administrative instruction on official travel so as to ensure that approval was not given if the intended main objective for mandate implementation could be met by the use of alternative methods such as videoconferencing.

139. The Administration stated that the information regarding the reduction in travel costs due to increasing reliance on videoconferencing services was not available within the Office of Information and Communications Technology and that no direct correlation could be made as to whether videoconferencing mitigated the need to travel.

140. **The Board recommends that the Administration draw up a plan for the time-bound replacement of videoconferencing equipment to ensure the resilience of videoconferencing services.**

IV. Acknowledgements

141. The Board wishes to express its appreciation for the cooperation and assistance extended to its staff by the Under-Secretary-General for Management, the Chief Information Technology Officer, the Office of Information and Communications Technology and members of their staff.

(*Signed*) Rajiv **Mehrishi**
Comptroller and Auditor General of India
Chair of the Board of Auditors
(Lead Auditor)

(*Signed*) Mussa Juma **Assad**
Controller and Auditor General of the
United Republic of Tanzania

(*Signed*) Kay **Scheller**
President of the German Federal Court of Auditors

Annex I

Status of implementation of the recommendations on information and communications technology affairs

Report reference	*Board recommendations*	*Administration's response*	*Board's assessment*	*Fully implemented*	*Under implementation*	*Not implemented*	*Overtaken by events*
A/67/651, para. 20	The Administration should develop a new information and communications technology (ICT) strategy, including a United Nations-wide information strategy and an enterprise architecture framework, that describes how information and technology will support and provide benefits for the Organization. Such a strategy needs to be consistent with United Nations objectives and realistic ambitions for transformation. The Administration then needs to make progress in the implementation of the ICT strategy in parallel with any agreed reforms to the Organization's operating model, culture and approach.	The report of the Secretary-General on information and communications technology in the United Nations written in 2014 (A/69/517) outlines the new ICT strategy. The Administration suggests that the status of the recommendation be changed to "implemented".	A revised ICT strategy has been developed and was approved by the General Assembly in its resolution 69/262. The strategy is being implemented and the Secretary-General has issued three progress reports on the implementation of the strategy. The recommendation is considered implemented.	X			
A/67/651, para. 29	The Administration should review its arrangements for capturing information on ICT expenditure with a view to enabling more effective monitoring of costs and improved decision-making on future expenditure.	This has been done through the implementation of Umoja. The Administration suggests that the status of the recommendation be changed to "implemented".	The Board noted that ICT expenditure is being monitored in Umoja. Therefore the recommendation is considered implemented.	X			

Report reference	*Board recommendations*	*Administration's response*	*Board's assessment*	*Fully implemented*	*Under implementation*	*Not implemented*	*Overtaken by events*
A/67/651, para. 30	The Administration should clearly specify how the chart of accounts in Umoja will enable ICT expenditure to be captured and monitored effectively. In addition, the Administration should consider whether there are any options for improving management information on ICT expenditure that could be pursued prior to the implementation of Umoja.	Under the guidance of the Controller, Umoja was configured to take into consideration the requirements for ICT expenditures. It includes a combination of codes that together are called "the coding block". Within the general ledger, a list of accounts that deal with ICT goods and services can be found at: https://umoja.un.org/files/chart-account-and-gl-mappings. The Office of Information and Communications Technology recently developed dashboards that allow for the monitoring of ICT assets as well as shopping carts in Umoja that include ICT assets or services, in accordance with the chart of accounts. The Administration suggests that the status of the recommendation be changed to "implemented".	The Board has verified the response provided by the Administration and considers the recommendation implemented.	X			
A/67/651, para. 31	In order to enable greater consistency and transparency with regard to ICT funding and budgets and allow better management of costs and effective prioritization, the Controller should require that proposed ICT budgets set out: (a) the cost of running day-to-day services; (b) the cost of licences and maintenance costs for existing systems; (c) costs related to upgrading existing service delivery (e.g. to improve security); and (d) new	Budget guidelines and relevant memos have been completed. The Administration suggests that the status of the recommendation be changed to "implemented".	The Board noted the Administration's response, but compliance by the departments in presenting the requirements for ICT resources is not ensured. The recommendation is considered to be under implementation.		X		

Report reference	*Board recommendations*	*Administration's response*	*Board's assessment*	*Fully implemented*	*Under implementation*	*Not implemented*	*Overtaken by events*
	costs, including strategic requirements.						
A/67/651, para. 32	The entities, offices and programmes comprising the United Nations should prioritize ICT funding to ensure that the right balance of attention is given to transformation, improvement and leadership, frameworks and policies, and operational services.	Budget guidelines and relevant memos have been completed. The Administration suggests that the status of the recommendation be changed to "implemented".	The Board noted the Administration's response, but compliance by the departments in presenting the requirements for ICT resources is not ensured. Therefore the recommendation is considered to be under implementation.		X		
A/67/651, para. 39	As a necessary precursor to any new ICT strategy, and to reduce the substantial risks associated with the implementation of a global enterprise resource planning system, the Administration should clearly document those elements of the culture, custom, practices and processes, as well as key cost and performance information, that may affect the achievability of a global ICT transformation in the United Nations. Using the results of this review, the Administration should define the Organization's overall objectives and specify realistic ambitions for global service delivery, consistent processes and a unified Organization.	The total cost of ownership is outlined in the Secretary-General's ninth progress report on the enterprise resource planning project (see A/72/397, paras. 125–133, and table 6 on maintenance costs for 15 years. Production support is addressed in paragraph 42 of the same report. The Umoja support model is structured on three levels to best serve users and is designed to achieve self-sufficiency in each location and provide efficient processes and expertise for the resolution of incidents and the fulfilment of service requests. The first level of support operates locally through local process experts, well-trained service desk personnel, communities of practice and other resources, supporting most incidents and service requests. The Umoja Support Centre, in Brindisi, and the Unite Service Desk, operating from Bangkok, Geneva, Nairobi and New York, provide the next level of	The response of the Administration cites the presentation of the total cost of ownership of Umoja, which is one of the business transformation projects in the Organization. There is still a need to clearly document the key cost and performance information, which may affect the achievability of a global ICT transformation. Therefore the Board considers the recommendation to be under implementation.		X		

Report reference	Board recommendations	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
		support. These integrated service desks act as the single point of contact for incident or problem management and service requests and escalate such requests, as needed, to process and technical experts working in global teams who specialize in business processes or technical components in Umoja. Umoja-related incidents have been declining steadily (see A/72/397, fig. III), with quick resolution at the local level and at the integrated service desks; however, process owners are under pressure to sustain production support capacity while their process experts are also dealing with competing demands for Umoja Extension 2 projects. Disaster recovery exercises took place on 6 May (failover) and 3 June 2017 (failback). The Administration suggests that the status of the recommendation be changed to "implemented".				
A/67/651, para. 41	The Administration should recognize the changes in responsibilities and operating model across the Secretariat that are needed to deliver any new ICT strategy and accept the responsibility of senior management as a whole to deliver Organization-wide changes to support the Chief Information Technology Officer.	The report of the Secretary-General on information and communications technology in the United Nations written in 2014 (A/69/517) outlines the new ICT strategy. The Administration suggests that the status of the recommendation be changed to "implemented".	The Board noted the Administration's response that a new strategy had been issued in 2014. Further, the Board noted that the Secretary-General's bulletin on the organization of the Office of Information and Communications Technology (ST/SGB/2016/11) had also been issued. However, the Board noted that the performance measurements for the implementation of the ICT		X		

Report reference	Board recommendations	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
			strategy were not specific enough to facilitate the objective measurement of the performance. Therefore the recommendation is considered to be under implementation.				
A/67/651, para. 56	In relation to ICT, the Administration should define the leadership and executive roles, competencies and management effort that should be directed to three distinct aspects of ICT delivery, namely: (a) transformative change, innovation and leadership across the Secretariat; (b) the design and enforcement of corporate guidance, frameworks, policies and standards; and (c) operational services.	This has been done. See the Secretary-General's bulletin on the organization of the Office of Information and Communications Technology (ST/SGB/2016/11), the "10 Points Action Plan", the policy compliance framework and the lists of standards and policies available on iSeek (the United Nations Intranet). The Administration suggests that the status of the recommendation be changed to "implemented".	The Board noted the response of the Administration and also noted that the Organization has 42 policies in place on a variety of subjects. While the implementation and review of the policies has been commented on separately, the recommendation is considered implemented.	X			
A/67/651, para. 68	The Administration should develop a fit-for-purpose governance framework to oversee the strategic development of ICT across the United Nations. This governance framework should clearly set out roles, accountabilities and responsibilities and ensure that decision-making bodies operate distinctly from consultative and advisory forums.	Governance framework documents have been completed. See also the Secretary-General's bulletin on the organization of the Office of Information and Communications Technology (ST/SGB/2016/11) and the report of the Secretary-General on information and communications technology in the United Nations (A/69/517). The Administration suggests that the status of the recommendation be changed to "implemented".	The Board took note of the governance framework documents indicated in the response of the Administration. However, the Board has noted that the delegation of authority has not yet been issued. Therefore the Board considers the recommendation to be under implementation.		X		

Report reference	Board recommendations	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
A/67/651, para. 76	Over time, the Administration should reassess staffing resources of the Office of Information and Communications Technology to more strategic activities and consider the use of alternative sourcing arrangements for day-to-day ICT support services.	In the light of the fact that the General Assembly, in its resolution 72/261, decided to reduce resources for contractual services by 10 per cent; reduce resources for furniture and equipment, consultants, supplies and materials and hospitality by 10 per cent; reduce resources for general operating expenditures and other staff costs by 5 per cent; reduce non-post resources for information technology by 10 per cent; and reduce resources for experts by 15 per cent, the Administration asks that the recommendation be closed, as it is not feasible to implement the recommendation in the context of declining resources. The Administration suggests that the status of the recommendation be changed to "implemented".	The Board noted the Administration's response and considers that the recommendation has been overtaken by events.				X
A/67/651, para. 82	Management should develop an "intelligent client" function for Secretariat-wide ICT and within United Nations departments to effectively articulate business needs and provide a channel for the Office of Information and Communications Technology, local ICT committees and business areas to improve services.	The intelligent client function has been added to the Business Relationship Management Section. The Administration suggests that the status of the recommendation be changed to "implemented".	The Board noted the response of the Administration and the terms of reference of the Business Relationship Management Section. In view of the response of the Administration, the Board considers the recommendation implemented.	X			
A/67/651, para. 92	The Administration should develop an application management strategy to minimize security risks and	As at 31 December 2017, the global application portfolio had 1,240 active applications. Some 1,100 applications were	In view of the response of the Administration, the Board considers the recommendation implemented.	X			

Report reference	Board recommendations	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
	reduce costs. Such a strategy should address enterprise-wide applications primarily and include the decommissioning of legacy systems applications and services and any necessary data migration. As part of the new strategy regarding applications, the Administration should also develop a process to ensure that strategic ICT and operational investments can be made, no matter where they are undertaken in the Secretariat, and that they are consistent with Umoja and other enterprise applications.	retired during the 2014–2017 period. The Office of Information and Communications Technology plans to retire some 240 applications globally during the 2018–2019 period. The Administration suggests that the status of the recommendation be changed to "implemented".					
A/67/651, para. 100	Management should strengthen Secretariat-wide ICT standards to consolidate and leverage ICT buying power, and use these standards to drive the harmonization of ICT as a necessary precursor to the consolidation of software applications and infrastructure.	This has been done (see the second report of the Secretary-General on the status of implementation of the information and communications technology strategy for the United Nations (A/71/400) and section V of General Assembly resolution 70/248 A). The Administration suggests that the status of the recommendation be changed to "implemented".	The Board assessed the response of the Administration and considers the recommendation implemented.	X			
A/67/651, para. 101	The Administration agreed with the detailed recommendation on ICT security set out by the Board in its memorandum to the Chair of the Advisory Committee on Administrative and Budgetary Questions on this matter.	An information security road map has been completed. The Administration suggests that the status of the recommendation be changed to "implemented".	The Board noted the Administration's response and also noted that some of the initiatives in the action plan to strengthen information security are still ongoing. Therefore the recommendation is considered to be under implementation.		X		

Report reference	*Board recommendations*	*Administration's response*	*Board's assessment*	*Fully implemented*	*Under implementation*	*Not implemented*	*Overtaken by events*
A/70/581, summary, recommendation (a)	The Administration should clarify the role and authority of the Chief Information Technology Officer in field operations by setting out clearly which activities require strong central control and which activities require or merit operational freedom.	The Secretary-General's bulletin on the organization of the Office of Information and Communications Technology (ST/SGB/2016/11) has been published and addresses the role and authority of the Chief Information Technology Officer. The Administration suggests that the status of the recommendation be changed to "implemented".	The Board noted the Administration's response but considers that the recommendation is still under implementation as, although the role of the Chief Information Technology Officer and the functions of the Office of Information and Communications Technology have been addressed, the authority of the Chief Information Technology Officer has not been clarified in terms of field operations by clearly indicating the activities that require strong central control or merit operational freedom. The recommendation is considered to be under implementation.		X		
A/70/581, summary, recommendation (b)	The Administration should reassess the realism of the timetable for implementing the strategy and strengthen the project management approach, including the introduction of independent assurance arrangements.	The recommendation is still pending due to resource constraints.	The Board noted the Administration's response and considers the recommendation to be still under implementation.		X		
A/70/581, summary, recommendation (c)	The Administration, as a matter of urgency, should formalize corporate ICT policies and procedures, including governance structures and appropriate delegations of authority, to ensure that the necessary authorities and accountabilities are in place to support the implementation of the ICT strategy.	This has been done (see ST/SGB/2016/11). The Administration suggests that the status of the recommendation be changed to "implemented".	The Board verified the bulletin and noted that the delegation to the Chief Information Technology Officer had not yet been issued. Therefore the recommendation is considered to be under implementation.		X		

Report reference	*Board recommendations*	*Administration's response*	*Board's assessment*	*Fully implemented*	*Under implementation*	*Not implemented*	*Overtaken by events*
A/70/581, summary, recommendation (d)	The Administration should establish a robust compliance framework with the necessary authorities to ensure adherence to Secretariat-wide ICT policies, including those on information security.	Policy compliance at a high level is ensured as part of the senior management compacts.	In view of the response of the Administration, the Board considers the recommendation to be under implementation.		X		
A/70/581, summary, recommendation (e)	The Administration should further refine and improve the quality of the data underpinning the five-year forecast of ICT expenditure by increasing visibility of actual expenditure and the status of ICT assets across all the Secretariat, including peacekeeping operations.	This has been done (see A/71/400 and section V of General Assembly resolution 70/248 A). The Administration suggests that the status of the recommendation be changed to "implemented".	In view of the response of the Administration, the Board considers the recommendation implemented.	X			
A/70/581, summary, recommendation (f)	The Administration should develop a statement of the expected costs and benefits of implementing the revised ICT strategy to enable strategic activities to be prioritized and resourced appropriately.	See figures XVII and XVIII in the second report of the Secretary-General on the status of implementation of the information and communications technology strategy for the United Nations (A/71/400). The Administration suggests that the status of the recommendation be changed to "implemented".	The Board reviewed the document and noted that the strategic projects were not tracked financially and some projects were lagging owing to competing priorities. The Board considers the recommendation to be under implementation.		X		
A/70/581, summary, recommendation (g)	The Administration should increase the visibility of senior management in leading the implementation of the ICT strategy to ensure that all departments are committed to implementing the revised ICT strategy as mandated by the General Assembly, and that any disagreements or impediments to implementing the strategy are assessed and resolved in a timely manner.	The key elements of the strategy are presented in meetings of the Management Committee and Senior Management Group. The Administration suggests that the status of the recommendation be changed to "implemented".	The Board reviewed the Administration's response and noted that the governance bodies had not met regularly. Further, during the Board's exit conference it was amply indicated that responsibility for the implementation of the strategy needed to be shared across the departments and the senior management of the Secretariat. The recommendation is considered to be under implementation.		X		

Report reference	*Board recommendations*	*Administration's response*	*Board's assessment*	*Fully implemented*	*Under implementation*	*Not implemented*	*Overtaken by events*
A/72/151, para. 21	The Administration should ensure that: (a) bodies under the ICT governance framework engage proactively in monitoring progress, resolving interdepartmental issues to ensure the implementation of the strategy in compliance with General Assembly resolution 69/262; (b) the performance measures in the senior managers' compact with regard to the strategy are made more objective and quantifiable; (c) immediate steps are taken to issue the necessary delegation and designation policies; and (d) departments submit road maps and take the steps necessary for aligning their business plans with the strategy.	A progress report will be made available to Member States in 2018.	The Board is of the view that the lack of periodic reporting on the implementation of the ICT strategy to the Office of Information and Communications Technology is bound to have an adverse impact on the ability of the bodies under the ICT governance framework and the Office to implement the strategy. The recommendation is considered to be under implementation.		X		
A/72/151, para. 33	The Chief Information Technology Officer and the Office of Information and Communications Technology, as the central authority for implementation of the strategy and its monitoring, should not only track the project timelines closely but also monitor the cost of each of the strategic projects to ensure transparency and accountability in substantial investments.	Project status reports collected from project/programme managers are reviewed monthly at meetings with the Chief Information Technology Officer. Projects are tracked according to key performance indicators including scope, timeline, human resources and budget. Slippages or deviations from the original plan are managed through discussions with the Chief Information Technology Officer, who, as the project executive for strategic projects, approves the institution of change control procedures.	The Office of Information and Communications Technology had not estimated the cost of implementation of each of the 20 strategic projects across the Secretariat and was not monitoring the progress of expenditure against them. This is a weakness in the system of project assurance and project performance monitoring of ICT strategic projects, and there is a risk that project costs will escalate owing to, among other things, slippages in adhering to timelines, the uneconomic and inefficient execution of projects and repeated modifications to or increase in the scope of		X		

Report reference	Board recommendations	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
		In order to address the lack of an electronic platform that could show resource usage according to projects, the Office of Information and Communications Technology introduced a cost template that tracked assignments for staff, consultants and contractors according to the percentage of time spent on each activity. This should supplement the information available in Umoja, which currently captures budgets and expenditures by section and budget category, but not by activity. In addition, the Office will soon create work breakdown structure elements to allow the monitoring of project expenditures according to cost centres/budgets. This will include both strategic projects and ongoing operations.	projects. The recommendation is considered to be under implementation.				
A/72/151, para. 40	The Office of Information and Communications Technology should complete the task of formulating and promulgating ICT policies in a time-bound manner and establish the proposed self-regulatory compliance function.	See the policy committee terms of reference available on iSeek.	Continued monitoring and enforcement of compliance with all ICT policies across the departments and duty stations are essential to ensure the standardized management of ICT resources and improve the coordinated use of ICT in the Organization. The Board concluded that the promulgation of policies and their review need improvement and also that compliance with policies is not properly monitored. Therefore the recommendation is considered to be under implementation.		X		

Report reference	*Board recommendations*	*Administration's response*	*Board's assessment*	*Fully implemented*	*Under implementation*	*Not implemented*	*Overtaken by events*
A/72/151, para. 45	The Administration should ensure that sufficient funds are earmarked for implementing the training plan.	The Office of Information and Communications Technology will again request funds for the implementation of training plans.	The lack of technical and substantive training provided to ICT staff may result in competency gaps, affect Organizational efficiency in terms of service delivery and lead to the non-realization of the full benefits of the implementation of the strategy. Furthermore, the Board observed that there was no road map of actions that would bridge the competency gaps by imparting requisite training programmes to staff in a manner matching the pace of the modernization of ICT networks and infrastructure, the deployment of various enterprise applications and the consolidation and rationalization of ICT resources across the Secretariat. The recommendation is considered to be under implementation.		X		
A/72/151, para. 50	The formulation and implementation of the ICT performance management framework should be expedited.	The Office of Information and Communications Technology does not have an ICT policy compliance function owing to a lack of resources.	In view of the response of the Administration, the recommendation is considered not implemented.			X	
A/72/151, para. 55	The Administration should ensure that all personnel complete the mandatory information security training.	By 31 December 2017, 62,196 authorized users of ICT resources, including contractors, consultants and interns, had successfully passed the test for the mandatory information security awareness training.	The completion rates of mandatory information security awareness training ranged from 0 to 6 per cent among senior officials (Under-Secretaries-General and Assistant Secretaries-General), 0 to 25 per cent among staff at the Professional level and above and 0 to 34 per cent among remaining staff.		X		

Report reference	*Board recommendations*	*Administration's response*	*Board's assessment*	*Fully implemented*	*Under implementation*	*Not implemented*	*Overtaken by events*
			Therefore the recommendation is considered to be under implementation.				
A/72/151, para. 60	The Office of Information and Communications Technology should create a mechanism for departments and offices to provide periodic updates on the implementation of the strategic project on information security.	The responsibility to classify information on the basis of its sensitivity was assigned to heads of departments and offices in a bulletin of the Secretary-General more than 10 years ago (see ST/SGB/2007/6) and reiterated by the Chief Information Technology Officer in a memorandum in 2016. It is reasonable to assume that most of the information in the Secretariat is unclassified (as defined by the bulletin) and is therefore unmarked. The Office of Information and Communications Technology is not the owner of the classification policy. Its role is "only" to ensure that classified information is adequately protected (if it is in digital form).	Although the departments and offices had been assigned the responsibility of classifying information on the basis of its sensitivity, there was no assurance that they had classified all information in line with its security or sensitivity level, given the lack of a way to verify compliance. Delays in the classification of the information assets and the absence of a way to verify compliance carries the risk of exposing significant sensitive information assets. The recommendation is considered to be under implementation.		X		
A/72/151, para. 67	The criteria for determining the criticality of applications should be reviewed and the number of critical applications should be ascertained on the basis of an analysis; and the number of critical applications should be progressively reduced by replacing them with new systems and enterprise-level applications through consolidation and rationalization.	Implementation is in progress.	Until the applications are consolidated they remain critical, and the status of the replacement of such applications needs to be closely monitored. A further review of applications should take place to clearly establish the actual number of critical applications based on business to date. The recommendation is considered to be under implementation.		X		
A/72/151, para. 77	Progress in website rationalization and harmonization and application	Regarding the rationalization and harmonization of websites across the Secretariat, the	The Board has assessed that the rationalization and harmonization of websites and		X		

Report reference	*Board recommendations*	*Administration's response*	*Board's assessment*	*Fully implemented*	*Under implementation*	*Not implemented*	*Overtaken by events*
	rationalization and consolidation should be expedited to mitigate security risks, reduce costs and optimize application value.	Office of Information and Communications Technology is taking a multi-pronged approach to further enhance the key, standard, underlying web content management platform (Unite Web) to facilitate both the migration of legacy websites from multiple non-standard technologies as well as to ensure that new websites are built on a single standard and compliant platform. In addition, the enterprise application centre in New York, in cooperation and coordination with the Department of Public Information and the Department for General Assembly and Conference Management, is working to establish website governance to ensure compliance with the five key compliance areas in order to make certain that new public-facing websites meet Organizational standards for technology, security, accessibility, multilingualism and branding. This will support efforts to achieve the overarching strategic goal of harmonizing websites in a more cohesive framework with regard to the public web presence of the United Nations. The Office of Information and Communications Technology has also included information on public websites in its annual application asset inventory and is tracking	the rationalization of applications is still under way. Therefore the recommendation is considered to be under implementation.				

Report reference	*Board recommendations*	*Administration's response*	*Board's assessment*	*Fully implemented*	*Under implementation*	*Not implemented*	*Overtaken by events*
		websites. Accordingly, designated IT focal points across the Secretariat have been instructed to update their website information and compliance in Unite Apps. Finally, a memo was sent to all departments advising them of the requirement to report their websites and confirm that their websites meet minimum security compliance requirements. With regard to applications, the Office of Information and Communications Technology has established enterprise application centres in New York, Vienna and Bangkok to coordinate application development and harmonization, while serving global user groups throughout the Secretariat. The enterprise application centres continue to coordinate and lead the global legacy applications, resulting in the reduction of the number of applications from 2,340 in 2014 to 1,220 in 2017. This reduction of 1,120 applications has been achieved through the consolidation of functionalities with existing enterprise applications and standardized platform-based solutions such as iNeed, Umoja, Inspira, Unite Docs, Unite Connections and Unite Web, and through the decommissioning and retirement of obsolete systems. The enterprise application centres continue to reduce the					

Report reference	*Board recommendations*	*Administration's response*	*Board's assessment*	*Fully implemented*	*Under implementation*	*Not implemented*	*Overtaken by events*
		number of legacy applications through collaborative efforts with local ICT entities, using established governance bodies and standard technical procedures.					
A/72/151, para. 86	The Administration should devise a first-level resolution rate measure by classifying the requests for services that could potentially be resolved at the first level.	The first step to devising a first-level resolution rate is to exclude "substantial tickets" that are not within the scope of Unite Service Desk user support activities, as Unite Service Desk agents are unable to address them. This step has been undertaken by and is the responsibility of the team tasked with managing the global service delivery model. The team is working to create a global shared catalogue of administrative services, the implementation of which is planned for 2018. A full review of the Umoja "technical" catalogue and thus the accurate identification and classification of requests for service that can be addressed by Unite Service Desk agents will follow the full deployment of the catalogue in all entities.	By excluding all requests for service tickets, the calculation made by the Administration may not depict the correct picture, as such tickets may include requests that could still be potentially resolvable at the first level, provided that the Administration has developed standardized rules for requests for service. The measure adopted by the Administration needs to be refined to define the requests for service that are resolvable at the first level. The recommendation is considered to be under implementation.		X		
A/72/151, para. 92	The Office of Information and Communications Technology should develop a detailed plan of action on innovative emerging technology in consultation with stakeholders.	Investment for emerging technologies is limited, however small programmes are supported wherever possible.	The Office of Information and Communications Technology has employed creative solutions, such as public competitions, to build analytic tools. The Board appreciates the efforts of the Administration and urges it to continue to adopt innovative approaches to establish and sustain an environment favourable to innovation in		X		

Report reference	Board recommendations	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
			analytics and other technological innovative areas. The recommendation is considered to be under implementation.				
A/72/151, para. 105	The relevant policies should be suitably revised to ensure that ICT procurements above a prescribed threshold are processed through Umoja and vetted centrally by the Office of Information and Communications Technology to ensure uniformity, standardization, compliance with ICT policies and benchmarking of costs.	A Contract Management Unit has been put in place within the Operations Coordination Section of the Office of Information and Communications Technology to support the administration of contracts pertaining to the Department of Management and the Information and Communications Technology Division in the Department of Field Support. The Office has established several contracts that are utilized by ICT offices across the globe, including: a voice and data contract; a geospatial information services contract, which is utilized to gather, manipulate, store and display data globally and in real time; an Airlines Worldwide Telecommunications and Information Service contract, which is a telecommunications contract for global connectivity utilized for service applications such as Umoja; and a contract with Cisco Systems, which is utilized to optimize and maximize network availability, reliability and performance. In addition, an ICT global system contract is being established for the provision of fully managed services such as	In the absence of any analysis of discounts obtained through global sourcing, it was not possible to make an objective assessment of the progress achieved in implementing global sourcing and optimizing the cost of ICT assets by means of discounts. Therefore the recommendation is considered to be under implementation.		X		

Report reference	Board recommendations	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
		email, data storage, satellite network management, service desk support, task order services and integrated workforce services. Finally, an ICT software application development services contract is currently under way.					
A/72/151, para. 106	A clear road map should be developed to realize cost optimization benefits through global sourcing.	Progress has been made in global sourcing and as a result savings from economies of scale and discounts were achieved for the equipment and services procured. A project plan has been developed to establish global contracts to optimize costs. The status of this project will be reported to the General Assembly each year in the report of the Secretary-General on the status of implementation of the ICT strategy for the United Nations.	In the absence of any analysis of discounts obtained through global sourcing, it was not possible to make an objective assessment of the progress achieved in implementing global sourcing and optimizing the cost of ICT assets by means of discounts. Therefore the recommendation is considered to be under implementation.		X		
A/72/151, para. 112	The Administration should take effective steps to ensure the implementation of the enterprise delivery framework and reduce the fragmentation of ICT resources.	The Office of Information and Communications Technology has established enterprise application centres in New York, Vienna and Bangkok to coordinate application development and harmonization, while serving global user groups throughout the Secretariat. The enterprise application centres continue to coordinate and lead the global legacy applications, resulting in the reduction of the number of applications from 2,340 in 2014 to 1,220 in 2017. This reduction of 1,120 applications has been achieved through the	Despite very specific resolutions of the General Assembly (69/262, sect. II, and 70/248 A, sect. V), the recommendations of the Advisory Committee (see A/70/7/Add.18, paras. 37–39) and the memorandum of the Chef de Cabinet, progress in the defragmentation of ICT resources across the Secretariat has been very slow. The recommendation is considered to be under implementation.		X		

Report reference	Board recommendations	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
		consolidation of functionalities with existing enterprise applications and standardized platform-based solutions such as iNeed, Umoja, Inspira, Unite Docs, Unite Connections and Unite Web, and through the decommissioning and retirement of obsolete systems. The enterprise application centres continue to reduce the number of legacy applications through collaborative efforts with local ICT entities, using established governance bodies and standard technical procedures. In addition, the enterprise application centre in New York, in cooperation and coordination with the Department of Public Information and the Department for General Assembly and Conference Management, is working to establish website governance to ensure compliance with the five key compliance areas in order to make certain that new public-facing websites meet Organizational standards for technology, security, accessibility, multilingualism and branding. This will support the effort to achieve the overarching strategic goal of harmonizing websites in a more cohesive framework with regard to the public web presence of the United Nations. The regional technology centres, which were established in May 2015, continue to				

Report reference	*Board recommendations*	*Administration's response*	*Board's assessment*	*Fully implemented*	*Under implementation*	*Not accepted*	*Overtaken by events*
		exercise oversight over Secretariat entities on issues of information security, governance and risk, compliance with ICT policies and the delivery of technological solutions regionally. The Enterprise Network Operations and Security Centre, established in 2015, continues to monitor all networks and data centre operations, creating much-needed visibility and improving uptime, performance and security. The enterprise data centres continue to deliver services in the areas of hosting, connectivity and monitoring. Major systems have been strengthened and moved to the centres, such as Umoja, iNeed, domain name services, directory services, Unite Identity, Exchange/Office 365 hybrid, email security gateways, shared database farms, Unite Docs, Unite Connections, EarthMed, Cosmos, COMET and the Field Support Suite. The implementation of applications through the centres takes full advantage of the 24/7 operations already in place at these centres, guaranteeing global service in all time zones.					

Report reference	*Board recommendations*	*Administration's response*	*Board's assessment*	*Fully implemented*	*Under implementation*	*Not implemented*	*Overtaken by events*
		The Unite Service Desk first became operational in Bangkok in September 2014, followed by Nairobi, Geneva, New York and Brindisi. The five hubs serve as the single point of contact for service requests, problems or inquiries for all key enterprise ICT applications. The five hubs have achieved the primary objective of providing 24/7 global support to United Nations personnel worldwide, irrespective of time and place.					
	Total			**8**	**25**	**1**	**1**
	Percentage			**23**	**71**	**3**	**3**

Annex II

Original strategic road map

Phases I and II cover the strategic information and communications technology (ICT) drivers of modernization, transformation and innovation. ICT business transformation and leadership cover the two major underlying areas of governance and optimal use of ICT resources, which are interlinked with the three strategic ICT drivers.